Forward

The target population of this course book is air traffic control students. However, the course book could also serve as an English training material for in-service pilots and controllers in their preparation for International Civil Aviation Organization (ICAO) language proficiency test.

The goal of this course book is to help students improve their English for communication of non-routine situations in air ground radiotelephony by providing them with common expressions and vocabulary. Standard phraseologies for routine situations are not covered herein.

With ICAO Language Proficiency Requirements as guidelines, the book tries to address the most imaginable events in air traffic control operations. Non-routine situations are indefinite, and the language for such situations can never be covered in a book.

The book is organized into 12 chapters in accordance with flight phases; namely: Preflight, Pushback, Start-up, Taxi-out, Takeoff, Climb-out, En-route, Descent, Approach, Final approach and landing, Missed approach, and Taxi-in and parking. Each has a dialogue section and a supplementary reading section. The dialogue section gives some expression for some real and fictitious events. The supplementary reading section contains two reports quoted from the British Confidential Human Factor Incident Report Programmes (CHIRPs) and can be studied to learn more expressions in flight operations context.

Hints for students: The air traffic control students will need to use plain English language for miscellaneous situations. Listening and speaking is more important than reading. To benefit from this course, careful attention should be paid to pronunciation, meaning and usage of new words; dialogues should be practiced until they can be spoken fluently; supplementary reading passages should be studied to learn ways of expressions.

Hints for instructors: Mispronunciation should be corrected. Meanings of new words should be explained. Fluent speaking of the dialogues should be checked. Understanding is not enough; speaking is essential; fluency is desirable.

The materials contained herein are intended for the learning of English and therefore not adequate for technical training. ICAO standard phraseologies should be used whenever appli-

cable.

Errors may be expected to occur in the preparation of this book due to the humble knowledge of the compiler. Any corrections or suggestion will be appreciated.

The author would like to thank Mr. Bengt Jamthammar and Mr. Ulf Axelsson, veteran Swedish air traffic control experts, for their valuable inputs and careful check of the book.

Yan Shaohua
Tianjin
Oct. 2007

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Chapter 1 Pre-flight

Section 1 Dialogues

1. Departure Delays

(1) PIL Queenston Delivery, Fastjet 324. We have two passengers missing, their luggage has to be identified and removed from the plane. Please delay our flight plan for 30 minutes.

CTL Roger, Fastjet 324. Call me when you are ready.

(2) PIL Loading operations seem to be taking longer than planned. Would you please delay our flight plan until 2015?

(3) PIL The passenger coach has broken down on the apron. Please delay our flight plan. I'll call you when boarding is complete.

(4) PIL Ground handling had to send for a bigger loader at the last minute and we're being held up on the apron.

(5) PIL Luggage loading is not yet completed. The conveyor belt has broken down, which means at least a 30 minute delay.

(6) CTL Your shipment hasn't been cleared by customs. Advise when customs clearance is complete.

(7) PIL Delivery, Fastjet 488. Our AOC just told us to pick up 30 passengers from a China Southern flight that's been cancelled. I'll call you back for start-up.

2. Negotiation of Departure Time

(1) CTL Fastjet 432. Expect 20 minutes additional delay.

PIL If we cannot get off in 30 minutes, we will have to cancel our departure.

CTL Fastjet 432, I'll see what we can do. But Queenston is restricting inbound traffic.

(2) PIL Queenston Delivery, Fastjet 543. We're bound for Princeton and will be ready in a few minutes. What are the delays like?

CTL Fastjet 543, delays are minimal on your route. A company aircraft going the same way just got a delay of 30 minutes or so. There's likely to be a delay of 20 or 30 minutes for you.

PIL Would it save us a delay to route via Lilyville?

CTL Negative. Fastjet 543. UC9 is subject to regulations.

(3) PIL Queenston Delivery, Fastjet 301. Do you have my flight plan for Kingston? I anticipate an on-time departure.

CTL Affirm, Fastjet 301. Delays are building up on your route. Are you about ready now?

PIL My passengers are just boarding. I'll be ready in 10 minutes. Can you put me on request for a slot after, say, 25?

CTL Roger, Fastjet 301. You're on request.

(A while later)

CTL Fastjet 301, can you make a slot time of 12, with a clearance expiry time of 15?

PIL Negative. We now have a catering delay. Put me back 15 minutes past the hour.

CTL Roger, Fastjet 301. Let me know when you're ready.

(A while later)

PIL Delivery, Fastjet 301. We're about ready now. Can you get us a slot?

CTL Fastjet 301, Affirm. Your slot time 24, start and push at your discretion.

3. Requesting Departure Priority

(1) PIL Delivery, Fastjet 128. This is an ambulance flight. We'll be ready in about half an hour. Can we expect an expeditious clearance?

CTL Fastjet 128, Affirm. We have been advised, there should be no delay for your departure.

(2) PIL Delivery, Fastjet 122, we'll be ready in about 20 minutes. As we are carrying a kidney for transplant at Queenston, a quick clearance would be appreciated.

CTL Fastjet 122, we have been informed about it. You may expect to depart as soon as you're ready, and the ACC has been asked to give you expeditious routing.

PIL Thanks a lot.

4. Checking Flight Plan

(1) PIL Delivery, Fastjet 254. Could you confirm that you've got our flight plan? Originally, we were to take off at 07:15, and then it was put off until 08:30.

CTL Fastjet 254, we've got it and it's OK with us.

(2) PIL Delivery, Fastjet 234. We filed our flight plan with Queenston and we were wondering whether it'd been relayed to Kingston, as we'd like to take off in about 20 minutes from now.

CTL Fastjet 234, we've got your flight plan. Departure time 1900, is that correct?

PIL That's affirm. I'll call you back when ready for startup. Fastjet 234.

(3) CTL There seems to be an error in your flight plan. The departure time has been entered in local time instead of UTC.

(4) CTL Your dispatch just advised us there's an error in your load sheet. Please call your dispatch.

(5) CTL Our flight data processing system has gone wrong again and we haven't got your flight plan yet. They say it's likely to take at least 25 minutes. I'll call you back.

(6) PIL Delivery, Fastjet 821. 5 minutes before start for Queenston. Request route clearance.

CTL Sorry, Fastjet 821. I've got no plan under that call sign. Stand by while I check.

PIL Delivery, Fastjet 821. As far as we're concerned, it was filed an hour ago.

CTL Fastjet 821, My apologies. The computer has failed to produce a strip for you. I'll write one out.

5. Route clearance

(1) CTL Fastjet 4328, your route clearance.

PIL Fastjet 4328 is ready to copy.

CTL Fastjet 4328 is cleared to Kingston via flight planned route maintain flight level 210, to request level change en-route, squawk 5214, frequency when airborne 120.6.

PIL Say again all after the squawk. Fastjet 4328.

CTL Fastjet 4328, squawk 5214, frequency when airborne 120.6.

PIL Fastjet 4328 is cleared to Kingston via flight planned route maintain flight level

210, to request level change en-route, squawk 5214, frequency when airborne 120.6.

CTL Fastjet 4328, Clearance void if not off by 0730.

PIL Roger, 0730, Fastjet 4328.

Words and Expressions

file	[fail]	To make application; apply 填报（飞行计划）
put off		To postpone; defer 耽误；延期
be bound for		On the way to, heading for 开往……；以……为目的地
AOC		Airline Operations Centre 航空公司运行中心
company aircraft		公司航空器
or so		Imprecise but fairly close 大约
save us a delay		避免我们的延误
be subject to		受……约束的
anticipate	[æn'tisipeit]	To hope for 期望
build up		Accumulating 越积越多
on request		On the request list
slot	[slɔt]	Departure time allocated to a flight 安排给航空器进离场的特定时间
make	[meik]	To reach in time 赶得上
expiry	[iks'paiəri]	Expire: To come to an end; terminate 终止；截止
go wrong		Fail to work properly 出错；发生故障
hold up		Cause to be slowed down or delayed 使停滞
load sheet		舱单
loader	['ləudə]	装货车
at the last minute		At the latest possible moment or opportunity 最后时刻，最后时机
conveyor belt		（装卸行李用的）传送带
shipment	['ʃipmənt]	Goods carried by a large vehicle 装载的货物
expeditious	[ekspi'diʃəs]	快捷的
appreciate	[ə'pri:ʃieit]	To be thankful or show gratitude for 感激
kidney	['kidni]	肾
void	[vɔid]	Ineffective 无效的

Exercises

Ⅰ. Translation

1. 我们差两个旅客，需要识别行李，准备好了我再叫你。
2. 签派刚刚通知我们要从取消的南航航班上捎走 20 个乘客，预计延误 30 分钟，上好客我再叫你。
3. 由于郑州流量控制，预计你还要再延误 40 分钟。
4. 如果我们不能马上起飞的话，就要滑回去加油了。
5. 起初我们计划 08:00 起飞，现在由于飞机原因延误到 11:00，请更新我们的飞行计划。
6. 高度层 370 要按规定。
7. 你的许可已经失效，等你准备好了我再给你申请一个。
8. 我们航班要运送紧急药品，准备好之后希望能马上起飞。
9. 飞行计划处理系统出了故障，延误时间暂时无法确定。
10. 我没有叫这个呼号的飞行计划，稍等，我查一下。

Ⅱ. Word Study

turnaround	[ˈtɜːnəˌraʊnd]	Act or process of unloading and loading and servicing a vessel or aircraft for a return trip 过站
ground handling		The servicing of an aircraft on the ground 地勤
catering	[ˈkeitəriŋ]	Providing food and service 配餐
refuelling	[riːˈfjuəliŋ]	The activity of supplying or taking on fuel 加油
loading	[ˈləudiŋ]	Putting cargo and luggage on a plane. E. g. The loading took 2 hours
boarding	[ˈbɔːdiŋ]	The act of passengers and crew getting aboard an aircraft 上客；登机
container	[kənˈteinə]	A large reusable receptacle that can accommodate smaller cartons or cases in a single shipment, designed for efficient handling of cargo 集装箱
forklift	[ˈfɔːklift]	叉车
tie-down		Securing device with or as if with ropes 系留
scheduled [ˈʃedjuːld] flight		定期航班

charter ['tʃɑ:tə] flight		The hiring or leasing of an aircraft, especially for the exclusive, temporary use of a group of travelers 包机飞行
shuttle ['ʃʌtl] flight		A flight that travels between two points
ferry ['feri] flight		A flight for the purpose of: 1. Returning an aircraft to base. 2. Delivering an aircraft from one location to another. 3. Moving an aircraft to and from a maintenance base.
test flight		试飞
positioning flight		调机飞行
rescue flight		救援飞行
disaster relief flight		救灾飞行
VIP		Very Important Person 要客
official welcome ceremony		官方欢迎仪式
protocol	['prəutəkɔl]	The forms of ceremony and etiquette observed by diplomats and heads of state 外交礼仪
diplomatic note		照会
alternative route		备份航线
initial level		初始高度
final cruising level		最终巡航高度
proposed level		申请的高度层
duplicate ['dju:plikeit] call sign		呼号重名
flight data processing		飞行数据处理
update flight plan		更新飞行计划
customs	['kʌstəm]	The governmental agency authorized to collect duties or taxes imposed on imported and, less commonly, exported goods 海关
manifest	['mænifest]	A list of cargo or passengers carried on a ship or plane 舱单
quarantine	['kwɔrənti:n]	Enforced isolation of patients suffering from a contagious disease in order to prevent the spread of disease 隔离检疫
disinfection	[ˌdisin'fekʃən]	Treatment to destroy harmful microorganisms 消毒
pallet	['pælit]	A portable platform for storing or moving goods that are stacked on it 托盘；集装架

packaging	[ˈpækidʒiŋ]	The process or style of packing 包装
cargo compartment/hold		货舱
baggage compartment		行李舱

Ⅲ. Diagram Study

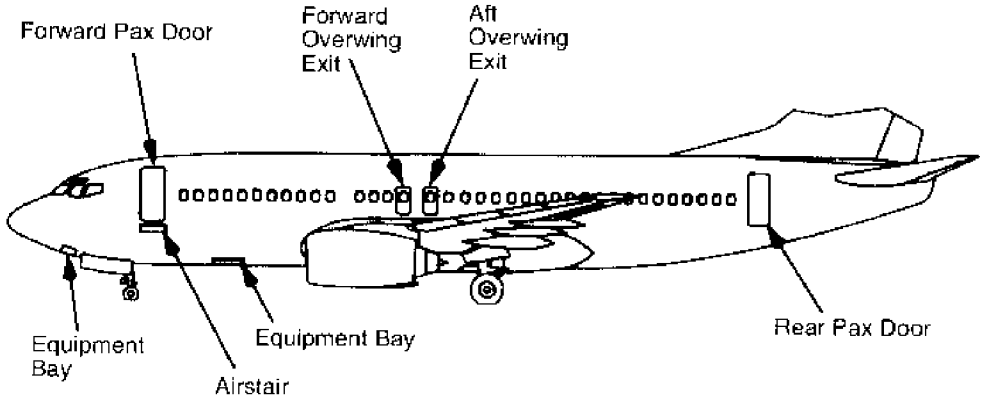

Figure 1.1 A Typical Airplane Exterior Doors

Section 2 Supplementary Reading

Passage 1 De-Icing

I am writing with concern over de-icing procedures on a recent flight on which I was a passenger.

As we boarded the aircraft it was obvious (visible from the jetty) that there was quite a deposit of snow and ice on the entire span of the wing upper surface. The temperature was probably around freezing, and light snow was falling from time to time.

Although on-stand de-icing is the normal procedure at the airport, the engines were started and we taxied towards the runway holding point. I became more and more worried as it became clear that we were not going to be de-iced before take-off and I knew that we needed to. We stopped near the runway in the queue for departure, and I was preparing to say something to the cabin crew when the first officer came out of the flight deck and had a look at the wings. I had a quick word with him and said we needed to de-ice and he returned to

the flight deck. The captain then made an announcement that we were returning to stand as he was not happy with the ice on the wing. We departed later after de-icing had been carried out, much to my relief.

I think it was very likely that the need to de-ice was made apparent by radio from following aircraft, which prompted the appearance of the co-pilot in the cabin for an inspection. I cannot imagine what else would have prompted this check at this late stage (the weather had not changed). Whatever it was, I am glad that the last link in the safety chain held on this occasion.

My concerns are:

1. Why wasn't de-icing carried out before departure when the need was obvious?
2. Did the crew carry out any pre-flight inspection, especially considering the conditions?
3. Did the cabin crew have any awareness of this issue, and would they feel able to comment to the flight crew if they had noticed ice on the wings?

Discussion question: Why was ice and snow on the wing so dangerous for aircraft flight?

Words and Expressions

de-ice		Make or become free of frost or ice 除冰
jetty	[ˈdʒeti]	Boarding bridge 登机桥
wing span		The distance between the tips of the wings of an airplane 翼展
light snow		小雪
from time to time		Now and then, or here and there 有时
cabin crew		Flight attendants 客舱机组
first officer		Co-pilot 副驾驶 second officer 第二副驾驶
prompt	[prɔmpt]	Remind 提示
stand	[stænd]	The position where an aircraft is parked 停机位

Passage 2 Pre-Flight Checks

Whilst awaiting a delayed flight from a small airport in the departures lounge, I observed a pilot completing a "Pre-Flight check" on a twin engine, regional turbo-prop type aircraft, shortly before start and taxi. I estimate the check to have taken 30 seconds. The check was

completed at a brisk walk with no stooping or stopping. A few cursory glances were as close to a check as he got.

Is it any wonder that significant defects, missing panels, covered Pitot static ports, control locks and gear pins are missed?

To refer to the pre-flight check as a walk-around is to degrade the significant purpose of the check, to detect obvious signs of damage, to ensure the aircraft is fit for the intended flight and to act as the final safety net for the maintenance system. After all, the check is defined in the maintenance program.

How many times have we read reports and thought "the pre-flight should have detected that" or "the crew did well to find that on a pre-flight".

The downgrading to a "walk-around" is almost certainly due to complacency bred by years of benign experience, but the nature of the maintenance program inspections/checks is that inspections are required at appropriate levels (including the pre-flight) and frequencies to detect both anticipated and random defects. The program builds in safety margins and considers human factors, but cannot be expected to be effective if inspection standards are routinely degraded.

Whilst it is accepted that it is often not possible to complete the pre-flight just prior to start and taxi, the operator remains responsible for ensuring its aircraft are fit for flight. Standard practices and procedures should surely be implemented to cater for towing, delayed door closure, de-icing and the like.

Some years ago, I was unfortunate enough to be involved in an aborted take-off when the pilot realized he had not removed the locks from the aircraft elevators.

Discussion question: Why is pre-flight check so important?

Words and Expressions

twin engine		Powered by two engines 双发
turbo-prop	[ˈtəːbəuprɔp]	An aircraft in which a turboprop is used 涡轮螺旋桨飞机
lounge	[laundʒ]	A public room (as in a hotel or airport) with seating where people can wait 候机厅
brisk	[brisk]	Marked by speed, liveliness, and vigour 轻快的；活泼的

Pitot	[ˈpitəu]	A device, essentially a tube set parallel to the direction of fluid-stream movement and attached to a manometer, used to measure the total pressure of the fluid stream 空速管；皮托管
stoop	[stu:p]	To bend forward and down from the waist or the middle of the back 屈身；弯腰
cursory	[ˈkə:səri]	Performed with haste and scant attention to detail 粗略的
pin	[pin]	销；栓
walk-around		绕机检查
cater for		满足……的需要
complacency	[kəmˈpleɪsənsɪ]	A feeling of contentment or self-satisfaction, especially when coupled with an unawareness of danger or trouble 自满
breed	[bri:d]	To bring about 产生
benign	[biˈnain]	Favourable 有利的
safety margin		安全裕度
aborted take-off		中断起飞
checklist	[ˈtʃeklist]	检查单

Chapter 2 Start-up

Section 1 Dialogues

1. Startup Delay

(1) CTL The jetway to your stand is out of order at the moment. The passengers won't be allowed to get on board until 1130, because we've got 2 aircraft starting up next to yours.

(2) PIL Kingston delivery, Fastjet 815. Five minutes before start for Queenston. Request route clearance.

CTL Fastjet 815, expect 30 minutes delay. The assistant controllers at Queenston ACC are on strike. They are only accepting traffic with 10 minute intervals.

(3) PIL There's going to be a 15 minute delay for startup. The moving walkway to our satellite has broken down.

(4) PIL We won't be ready to start up until 1015. We're being delayed by a luggage tractor problem.

(5) PIL There's a hitch in catering delivery. We will have to delay startup. I'll call you back when ready.

(6) PIL Ground, Fastjet 445. We can't start up. Our batteries are flat. Would you check with Northwestern for us and see if we can use their GPU?

CTL Fastjet 445, at the moment the Northwestern crew are starting up the A310 on your right. Can you contact them yourself?

(7) PIL Kingston Ground, Fastjet 539. Good morning, ready to start.

CTL Good morning, Fastjet 539. There's a 55 minute delay this morning. The flight plan processing system is down in our ACC. Your slot time is 0945.

PIL 0945, roger, Fastjet 539.

(8) PIL We may have to cancel our departure. Our cargo doorsill has just been damaged by a pallet. I'll call you back when check is complete.

(9) PIL Kingston Ground, Fastjet 692. Good morning, request startup.
CTL Good morning, Fastjet 692. Slot time 35, start up 10 minutes before.
PIL Slot time 35. Start up 10 minutes before. Fastjet 692.
(A while later)
PIL Fastjet 692, we wish to delay our startup due to passenger baggage identification process. We have one passenger missing.
CTL Roger, Fastjet 692, call me when you are ready.

2. Negotiation of Startup Time

(1) PIL Ground, Fastjet 099. Ready to start.
CTL Fastjet 099, expect startup in about an hour due to flow control in Kingston ACC.
PIL Couldn't we start up earlier? We've got two pandas on board and they'll be dead by then.
CTL Fastjet 099, I'll see what we can do but it's a bit of a rush at the moment.

(2) PIL Ground, Fastjet 015. How is snow removal coming along on the taxiway to 18L? Can we expect startup in about 10 min?
CTL Fastjet 015, they say they're being delayed by a gale. Expect 35 minutes delay.

(3) PIL Ground, Fastjet 234. We are to carry a kidney machine to Queenston. We expect delivery of the machine within a few minutes. We'll request immediate startup when ready.
CTL Fastjet 234, that'll be OK with us.

(4) PIL Kingston Ground, Fastjet 670, good morning, request startup.
CTL Fastjet 670, expect departure at 10. I'll call you back for start.
PIL Could we start up earlier please? We've got race horses in the hold.
CTL Fastjet 670, standby one. Let me coordinate to see if they can squeeze a slot for you.
(A while later)
CTL Fastjet 670, OK. Your slot time 56, startup approved.
PIL Thanks very much. Starting up. Fastjet 670.

3. Engine Run-up

(1) PIL Ground, Fastjet 933. Stand B14. Can we have permission to start up left outboard for engine check?
CTL Fastjet 933, Affirm. Startup power, please. You check safety. Advise me when complete.

Words and Expressions

moving walkway		自动步道
hitch	[hitʃ]	An impediment or a delay 障碍或者拖延
gale	[geil]	A very strong wind 大风
GPU		Ground Power Unit 地面动力装置
squeeze	[skwi:z]	To manage to find time or space for 挤出时间或位置
doorsill		The threshold of a doorway 门槛

Exercises

Ⅰ. Translation

1. 你目的地机场地面人员罢工，流量限制 20 分钟一架。
2. 我给你协调一下，看看他们能否给你挤出个缝隙起飞。
3. 供餐出了问题，请推迟我们的起飞时间，准备好了我再叫你。
4. 我们的货仓门被集装箱碰坏了，可能要取消航班，检查之后我再叫你。
5. 清雪情况进展如何，我们能在 30 分钟后起飞吗？
6. 我们飞机上有鱼苗（fry），难道不能让我们早点儿开车吗？
7. 请求启动试车。
8. 我们要运送一个移植器官，几分钟之后就到，准备好了之后希望能马上开车。
9. 能否帮我们联系一下东航，看能不能用一下他们的电源车？
10. 我机位的登机桥坏了，可能要推迟开车。

Ⅱ. Word study

air starting unit		气源车
bulk loader		散货装载机
carousel	[ˌkærəˈzel]	A circular conveyor on which objects are displayed or rotated 旋转式行李传送带
galley service truck		厨房清理车
lavatory service truck		厕所清理车
water service truck		供水车
ground air preconditioning unit		空调车
ground staff		地面工作人员

operational staff		运行人员
demonstration	[ˌdemənsˈtreiʃən]	A public display of group opinion, as by a rally or march 示威
sit-in		An organized protest demonstration in which participants seat themselves in an appropriate place and refuse to move 静坐示威
turmoil	[ˈtəːmɔil]	A state of extreme confusion or agitation; commotion or tumult 动乱
run-up		试车
idle	[ˈaid]	To run at a slow speed or out of gear 慢车
maximum continuous thrust		最大连续推力
organ for transplant		移植用的器官
vaccine	[ˈvæksiːn]	疫苗
urgent medicine		紧急药品
dangerous goods		危险品
perishable goods		易逝品
livestock	[ˈlaivstɔk]	Domestic animals 家畜
expected \ estimated \ revised \ actual		预期的 \ 预计的 \ 修订的 \ 实际的
ETD		Estimated Time of Departure 预计起飞时间
ATD		Actual Time of Departure 实际起飞时间
ETO		Estimated Time Over 预计飞越时间
ETA		Estimated Time of Arrival 预计到场时间
ATA		Actual Time of Arrival 实际到场时间
EAT		Expect Approach Time 预计进近时间
EOT		Expect Onward Clearance Time 预计下一步许可时间

Ⅲ. Diagram Study

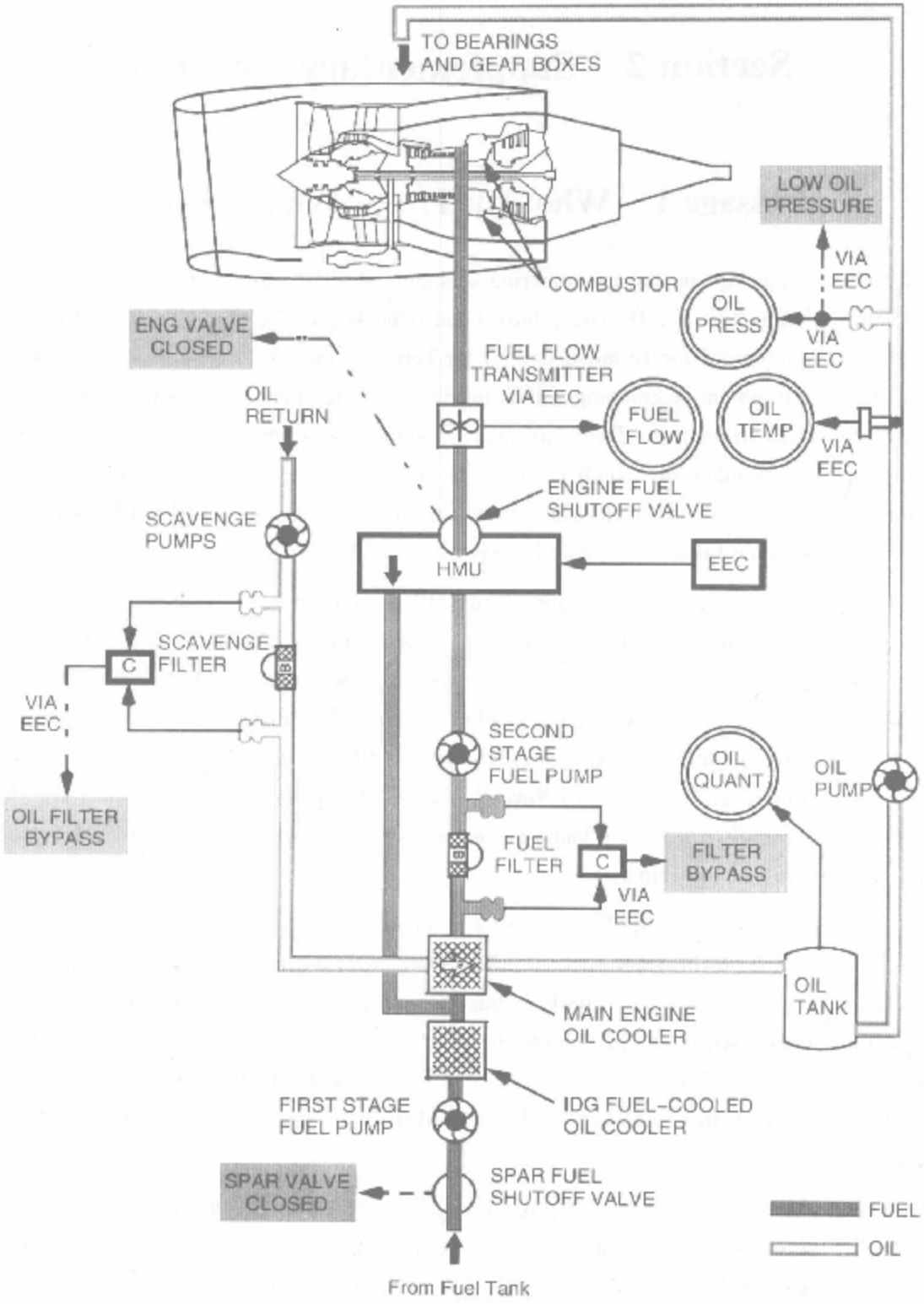

Figure 2. 1 A typical Airplane Fuel and Oil System

Section 2 Supplementary Reading

Passage 1 Who Am I? — Where Am I?

I would like to comment on the renumbering of stands at LHR. To summarise, in most cases the old prefix letters (B, C, D, etc.) have been removed, and a third digit added in front of the old stand numbers: 1 for Terminal One, 2 for Terminal Two, etc. It sounds logical enough. However, the old system of grouping stands together had significant advantages in terms of increasing situational awareness. There are over 50 stands on Terminal One, and it is unlikely that a pilot can remember all of their locations. It used to be very easy to know the approximate location of stand C24; it was in the Charlie cul-de-sac. Now however, it might be necessary to consult the aerodrome booklet to locate the new stand 124.

Does this matter? Yes, because frequently at LHR one does not receive a stand allocation until after landing and whilst vacating the runway. This is already a time of high workload, with the need to ensure clear of the runway, change frequency and carry out the after landing checklist. The additional distraction of having to physically check a ramp chart at the same time is not an improvement to flight safety. Some stands at LHR are very close to the runway turnoff points: for example, 27R and the old Novembers. An otherwise prudent decision to taxi clear of the runway, complete the after landing checks, and then locate stand 178 might result in having already missed the stand.

Also, the ability to reduce R/T by referring to the old prefixes - "right onto the inner at the Bravos", "hold abeam the Charlies" etc, has been lost. We now have the farcical situation where both ATC and pilots, particularly at busy periods, refer variously to "the old Charlies", "where the Tangos used to be", "the area formerly known as the Victors" and so on. This may be poor R/T discipline, but it is still easier than the new alternatives. Surely the point is that the old system was better, reduced R/T, increased situational awareness and therefore improved flight safety.

A further related problem has emerged. Yesterday, on a taxi frequency, callsign confusion took place between ATC and an aircraft in the Central Area. As it was sorted out it became clear that the aircraft had been using its Stand Number as its callsign. ATC remarked, in consolation perhaps, "Don't think you're the first to do this - it's happening quite often". Then followed an exchange between various aircraft and ATC about the new Stand numbering, and

the wish that we could go back to the old system. ATC concurred. It is pretty fair to say that all this is making an already difficult peak period Heathrow even more difficult.

So, why have the stand numbers been changed? Presumably, it is in an effort to comply with new JAR recommendations. Sadly, the desire to satisfy Brussels bureaucracy is not a good enough reason to increase workload and reduce safety at LHR. Would it be possible to reinstate the old prefixes, and thereby refer to stand 124 as C24? This would have the advantage of being a no cost solution. It would also, surely, be very close to satisfying the new JAR requirements. If not, then this could be notified as a variation to ICAO/JAR rules due to local circumstances.

I have just operated to CDG. Regular visitors will be familiar with the non-standard use of French language by ATC, which presumably has long since been notified as a local variation to ICAO requirements. However, it was a pleasure to be directed to stand Y6, since I was immediately able to locate its approximate position. There are no imminent signs of any changes in the stand designations at CDG, and I am bound to say that on this occasion the French have got it right.

Discussion question: Why does the author think that the old numbering system was better?

Words and Expressions

LHR		London Heathrow [ˈhiːθrəʊ] 伦敦希思罗机场
cul-de-sac	[ˌkuldəˈsæk]	A dead-end street 死胡同
aerodrome booklet		机场手册
distraction		Diversion of attention 分心
runway turnoff		跑道出口
prudent	[ˈpruːdənt]	Careful in a sensible way 谨慎的
abeam	[əˈbiːm]	At right angles to the longitudinal axis of a plane 正切
farcical	[ˈfɑːsikəl]	Ridiculous and absurd 滑稽可笑的
concur	[kənˈkəː]	Agree 同意
consolation	[ˌkɔnsəˈleiʃən]	安慰
reinstate	[ˈriːinˈsteit]	To bring back into use or existence 恢复
CDG		Charles de Gaulle 法国巴黎戴高乐机场
bureaucracy	[bjuəˈrɔkrəsi]	An administrative system in which the need or inclination to follow complex procedures impedes effective action 官僚

JAR		Joint Aviation Requirements（欧洲）联合航空要求
designation	[ˌdezigˈneiʃən]	Giving a name 命名

Passage 2 RTF Language

I am a French national and have spent most of my career based in the UK, flying for UK carriers to Europe, Mediterranean and long-haul destinations. I do agree that in an ideal world everyone involved in aviation should be fluent in English, just as I agree that the wind should always blow straight down a runway at five knots, instead of straight across at twenty-five...

Most professional pilots outside the English-speaking world have to pass a stringent RT exam to prove their knowledge of aeronautical English is up to scratch, before they're legally entitled to take an aircraft outside their home airspace. It might therefore be a good idea to force big carriers in France, Spain, Italy, to use English for their RT. However, speaking as a pilot whose mother language is not English, I have found that it's sometimes more difficult to understand some of my own countrymen speaking English than an English or American voice. Combine that with confusing RT at a busy holiday destination and you have more potential for misunderstandings and danger than in the current status-quo.

Another point I'd like to make is that in a lot of European countries much of controlled airspace is open to PPL-holders without an IR. There is no requirement in many of these countries for pilots flying within National airspace to have any proficiency in English. Consequently, their knowledge of English can be non-existent. Forcing these people to use English could lead to catastrophic misunderstandings.

My suggested solution is simple: Use your ears, and experience. Over the years I've learnt to recognise the Spanish word for "Flight Level" and "Heading", and the rest is just numerals and pretty standard. It's certainly helped me with situational awareness.

OK, maybe it's easier for me because I grew up speaking a Latin-based language, but most pilots are sharp and adaptable by nature, so should try to make the effort.

Discussion question: Should only English be used for international radio telephony?

Words and Expressions

carrier	['kæriə]	A firm in the business of transporting people or goods or messages 承运人
long-haul		A long distance 远程
stringent	['strindʒənt]	Imposing rigorous standards of performance 严格的
up to scratch		达到标准
status-quo	[steɪtəs'kwəʊ]	The existing condition or state of affairs 现状
PPL		Private Pilot License 私人驾照
IR		Instrument Rating 仪表等级

Chapter 3 Pushback

Section 1 Dialogues

1. Communication Anomalies

(1) PIL Ground, Fastjet 156, Can you put your microphone closer to your mouth? I read you very weak.

CTL 12345, radio check on 121.75. How is it now, Fastjet 156?

PIL Loud and clear. Fastjet 156.

CTL Fastjet 156. We had the switch on the wrong headset just now. Sorry about that.

(2) CTL Fastjet 432, could you contact your company when convenient?

PIL Fastjet 432, wildo.

CTL Fastjet 432. Can you use Number 2 box? If not, report back on this frequency?

PIL Fastjet 432. Wilco.

(3) PIL Ground, Fastjet 823, we can hear a distress signal on 121.5. Would you please check?

CTL Thank you, Fastjet 823. I've had similar reports earlier. The fact is the ELT of an aircraft on the ground is out of order and being repaired.

(4) PIL Ground, Fastjet 122. Good morning, request push and start.

CTL Aircraft calling ground, I've already got another Fastjet 122 on my frequency. Change your call sign to your registration number B-2443.

PIL OK, B-2443 is ready for push and start.

(5) CTL Fastjet 145, taxiways C, A, M to runway 25.

PIL Was that for Fastjet 155?

CTL Negative, sir. That was for Fastjet 145.

2. Delayed Pushback

(1) PIL (unintelligible) Request pushback from gate E15.

CTL Aircraft making last transmission, identify yourself.

PIL This is Fastjet 113, requesting pushback from gate E15.

CTL Fastjet 113, one minute please, there is an aircraft behind you.

PIL Roger, Ground. But I've got a slot time of 30.

CTL Fastjet 113, the time is 22, runway-in-use 16. I'll push you back in a few moments.

PIL Ground, Fastjet 113. If we don't make this slot time, we've been told to expect a delay of two hours.

CTL Roger, Fastjet 113. I'll call you back in a few seconds.

(A while later)

CTL Fastjet 113, pushback approved. Caution, there seems to be a truck passing behind.

PIL Fastjet 113 is pushing back.

(2) PIL Ground, Fastjet 559. Request pushback.

CTL Fastjet 559, there's a triple seven to pass behind and park behind, after him, pushback approved.

PIL After the triple seven, pushing back. Fastjet 559.

(3) PIL Ground, Fastjet 887 is ready to go, but the tow-bar has broken. Is it OK if we are a few minutes late?

CTL Fastjet 887, if it's going to be more than a few minutes, we'll have to allocate a new slot.

(A while later)

PIL Ground, Fastjet 887 on stand D21, we've got another tow-bar, but it's a different design and doesn't seem to fit.

CTL Fastjet 887, Ground. I'm afraid your clearance has expired. We'll issue a new slot when you're ready.

(4) PIL Ground, Fastjet 357. We are stuck on the ramp. The tow-bar has come off during pushback.

CTL Fastjet 357, could you taxi under your own power from your present position?

PIL I'm afraid we'll have to be pushed further back. I'll check with the tug driver whether it can be fixed quickly.

CTL Roger, Fastjet 357. Call me back for taxi when you've got it sorted out.

(5) PIL Fastjet 310, we're having problems with the tow-bar. We're waiting for another one.

CTL Roger, Fastjet 310. In that case, your slot is revised to 45.

PIL But, it won't take us more than 15 minutes.

CTL Fastjet 310, I understand. But 3 more aircraft going to Princeton are about ready now.

(6) PIL Fastjet 870, request pushback from stand K12. With information M.

CTL Fastjet 870, expect a couple of minutes delay due to vehicle broken down behind you.

(7) PIL Fastjet 102, our slot time is 1510 plus 5 minutes. Stand J14, request start and push.

CTL Fastjet 102, startup approved. Push back to face east.

PIL Start and push approved, facing east, Fastjet 102.

CTL Fastjet 102, Can you push well back to allow a 737 to pass in front of you?

PIL Pushing well back, Fastjet 102.

3. Towing aircraft

(1) TUG Ground, tug 6. Request tow from stand 30.

CTL Roger, Tug 6. Tow approved. Proceed all the way to the maintenance area. You can route via taxiway R.

TUG Tug 6, roger. The tow bar has bent, and I'm waiting for them to get another one.

CTL Tug 6, report when ready to tow.

TUG Tug 6, it won't be long. They're on the way back from the engineering with it now.

(A while later)

TUG Kingston Ground, Tug 6. Ready to tow.

CTL Tug 6, tow approved. Report approaching the maintenance taxiway.

(2) TUG (Loud noise of diesel engine on the frequency)

CTL Vehicle calling Ground, you're completely unreadable.

TUG (More noises)

CTL Tug calling Ground, I cannot read you, heavy background noise. Can you shut down your engine?

TUG (More noises)

CTL Tug trying to call Ground, make no further transmissions. I suggest you get your radio fixed as soon as possible.

TUG (Brief noise)

(A while later)

TUG Queenston Ground, Tug 3. Request tow for an A320 from stand 8 to the maintenance area.

CTL Tug 3, hold position. There is an aircraft on the maintenance taxiway. Did you try to call me earlier?

TUG Tug 3 to Queenston ground, that's right. We had an unserviceable headset just now. Sorry about that.

CTL Roger, Tug 3. Push back from 8, report ready to tow.

(3) TUG Tug 5 (unreadable) tow to (unreadable)

CTL Tug 5, your transmission was broken. Try again.

TUG Queenston Ground, Tug 5. Request tow for a Boeing 767 from stand 21 to the maintenance area.

CTL Tug 5, be advised two aircraft taxiing out on taxiway B. Do you have them in sight?

TUG Affirm. It's a 737 and a 757.

(4) TUG Ground, request tow a DC10 from the maintenance area to the apron?

CTL When do you expect to leave the maintenance area?

TUG In about 10 minutes.

CTL Alright, Tow approved, proceed via service taxiway and watch out for the traffic lights on runway 20, we're using 02.

TUG Shall we call you leaving the maintenance area?

CTL Please.

(A while later)

TUG DC10, moving out now.

CTL Roger.

(A while later)

TUG DC10 tug, request cross runway 08?

CTL Affirm tug, report vacated.

(A while later)

TUG DC10 tug, runway vacated now.

CTL Roger, DC10 tug, the biplane taxiing down runway 17 is on its ways to the general aviation terminal.

TUG Roger, traffic in sight. It's well ahead of us.

Words and Expressions

headset	['hedset]	A pair of headphones with a voice transmitter attached (戴在头上的) 耳麦
distress	[dis'tres]	A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance 遇险
allocate	['æləukeit]	To distribute according to a plan; allot 分拨，分配
stuck	[stʌk]	Unable to move 动不了了
check with		与……协商
ELT		Emergency Locator Transmitter 紧急定位发射机

Exercises

Ⅰ. Translation

1. 如果我们赶不上这个缝隙时间，他们说要我们再等两小时。
2. 推出的过程中拖把掉了，我们晚几分钟行吗?
3. 你信号我听不清，请检查一下发射机。
4. 方便的时候请与你们公司联系一下。
5. 刚刚是哪个发话? 请讲一下呼号。
6. 推出稍等，你后面有个737滑过。
7. 推出的时候拖把弯了，我们要等他们重拿一个过来。
8. 现在的位置你能靠自己的动力滑行了吗?
9. 不对，刚才的指令是发给国航963的。
10. 可以推出，机头向南，使用跑道刚刚改为02。

Ⅱ. Word study

unreadable	[ʌn'ri:dəbl]	Not decipherable 听不清的
readability	[ˌri:də'biliti]	The quality of transmission that makes it easy to understand 清晰度
whistle	[(h)wisl]	A clear, shrill, sharp sound 啸叫声
background noise		背景噪音
interference	[ˌintə'fiərəns]	The distortion or interruption of one signal by others 干扰

static	[ˈstætik]	Crackling or hissing noise caused by electrical interference 静噪
signal	[ˈsignl]	The sound, image, or message transmitted or received in telegraphy, telephony, radio, television, or radar 信号
distortion	[disˈtɔːʃən]	An undesired change in the waveform of a signal 失真
in and out		进进出出 in and out of clouds 间断云中 断断续续 Your transmission was cut in and out.
relay/pass a message		转发电报
stuck microphone (mike)		麦克风卡住
cross transmission		同时发话
blocked transmission		发话被干扰 Your transmission was blocked. Say again.
Push-To-Talk switch		发话开关
jetway	[ˈdʒetwei]	A telescoping corridor that extends from an airport terminal to an aircraft, for the boarding and disembarkation of passengers 登机桥
boarding gate		登机口
pier	[piə]	指廊
satellite	[ˈsætəlait]	卫星厅
service road		辅路
lane	[lein]	A prescribed course for aircraft 通道
ramp vehicle		机坪车辆
mobile lounge		升降式摆渡车
obstruct/block		阻挡
fire brigade training exercise		消防队演习
tarmac	[ˈtɑːmæk]	A paved surface having compressed layers of broken rocks held together with tar 碎石跑道
ramp	[ræmp]	= apron 机坪
apron	[ˈeiprən]	A paved surface where aircraft stand while not being used 机坪

Ⅲ. Diagram Study

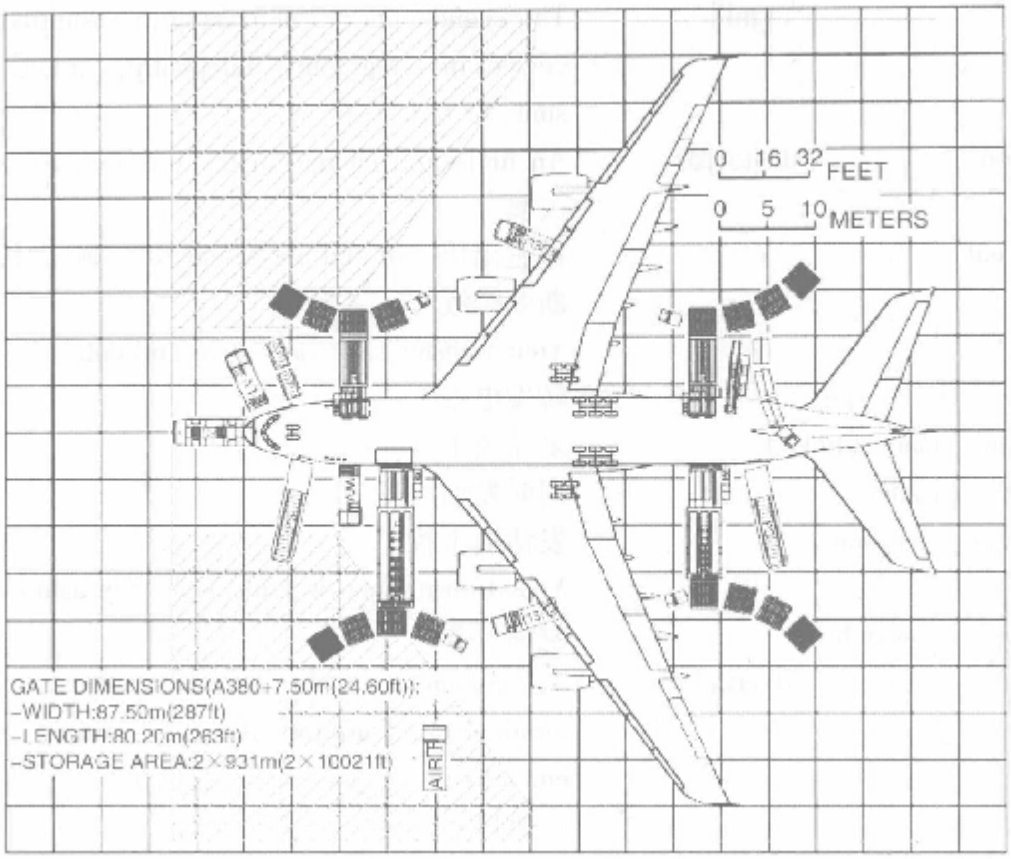

Figure 3. 1 Airbus 380 Baseline Ramp Layout

AC: Air Conditioning Unit
AIR: Air Start Unit
Conveyor: Conveyor Belt
Fuel: Fuel Hydrant Dispenser
GPU: Ground Power Unit
LV: Lavatory Vehicle
PL: Pallet/Container Loader
PS: Passenger Stairs
TOW: Towing Tractor
WV: Portable Water Vehicle

Section 2 Supplementary Reading

Passage 1 Commercial Rivalry

Our aircraft pushed back simultaneously with a competitor airline's aircraft, both inbound to a regional airport. ABC123 called for taxi to ensure that they took off before us whilst the

ground engineer was in front of the nose wheel, in the nose gear bay, removing the undercarriage pin. Fortunately, taxi clearance was not issued until the engineer was clear of the aircraft.

ABC123 pulled onto stand 2 minutes ahead of us, both sets of passenger disembarked simultaneously and both crews caught the same bus to the car park. The ground engineer's life was compromised, and for what?

SOPs exist to safeguard the aircraft, its crew and passengers, and other persons, vehicles etc. When a captain starts to flaunt SOPs, especially when he is in a rush, in-built safety measures designed to minimize danger start to be eroded, increasing the inherent risk to life. If a captain is prepared to flaunt one SOP, does it not follow that he is likely to flaunt other SOPs thus further reducing safety margins?

The crew in this incident were flaunting SOPs and they were rushing, a recipe for disaster. I am not aware of any management pressure at this airport on captains that may have had influenced this particular captain to act as he did on that day. I know for a fact that management pressure of this sort does not exist in my airline. I believe that a cockpit culture of dangerous rivalry is developing. A minority of captains are to blame and need to be more disciplined and professional before serious harm is done. I wonder how many other airlines suffer from this.

I have been told of crews from the same company disobeying conditional push-back clearances, i. e. not pushing as far as ATC have instructed them to, so blocking in other operator's aircraft also fully ready for push back. When challenged by ATC as to why they had not obeyed the clearance, they simply laughed over the RT.

We are supposed to be mature, disciplined and professional as flight deck crew. Let us all behave accordingly and help each other, whoever we work for, before it's too late.

Fortunately, practices such as those described here are rare but are typical of the commercial rivalry that can develop between some pilots/operators.

However, the effects of what are perceived by the recipients to be unprofessional or unfair practices can last for the rest of a duty period and thus be quite detrimental to flight safety.

Worth thinking about the next time you try to sneak in front of "the opposition"?

Discussion question: Why did some crews deviate from SOPs sometimes?

Words and Expressions

rivalry	[ˈraɪvəlrɪ]	The act of competing or emulating 竞争行为
simultaneously	[ˌsɪməlˈteɪnɪəsly]	Happening, existing, or done at the same time 同时
inbound	[ˈinbaund]	Directed or moving inward or toward a center 向台；进港
nose gear bay		前起落架舱
clear of		To leave a place, usually quickly 离开
undercarriage		The landing gear of an aircraft 起落架
disembark	[ˌdisimˈbɑːk]	Get off transportation 下飞机
compromise	[ˈkɔmprəmaiz]	To expose or make liable to danger 危及
flaunt	[flɔːnt]	To show contempt for 轻蔑
SOP		Standard Operating Procedure 标准操作程序
in-built		Inherent 内置的
erode	[iˈrəud]	To cause to diminish, deteriorate, or disappear as if by eating into or wearing away 侵蚀
recipe	[ˈresipi]	A formula for or means to a desired end 诀窍
discipline	[ˈdisiplin]	To teach to obey rules 使遵守准则
disciplined	[ˈdɪsɪplɪnd]	Possessing or indicative of discipline 受过训练的；遵守纪律的
RT		Radiotelephony 无线电通话
recipient	[riˈsipiənt]	One that receives or is receptive 承受者；对方
detrimental	[ˌdetriˈmentl]	Causing damage or harm 有害的
sneak	[sniːk]	To go or move in a quiet, stealthy way 偷偷摸摸地行动

Passage 2 Do unto Others as Road rage?

We were parked on Stand 22 at a regional airport with another company's aircraft parked on the adjacent stand. The stand layout is such that if an aircraft is pushed back from the adjacent stand it "blocks" any aircraft on Stand 22 from taxiing until the aircraft from the adjacent stand has taxied clear.

As we closed our doors, the crew of the other aircraft called for pushback and start. My

understanding is that the request for pushback implies that an aircraft is ready to move. The other aircraft was however clearly not ready - the cargo door was open with a loading ramp attached and the passenger door open with the steps down. Despite this, Ground Control approved their pushback and then subsequently approved our push. As we went backwards our neighbor, not surprisingly, stayed where he was whilst his doors were closed. Ground eventually questioned them about the delay to which they replied that it was due to a "problem locking one of our doors". Ground told them to hold position and report ready for push.

With our push and after-start checks complete, we were ready to start taxiing, but the other aircraft then called that they were ready. We were very surprised that Ground gave them a second approval for pushback considering that it would block us in whilst they pushed and started. It soon became apparent that the other aircraft was still not ready. As after some delay with no movement, Ground told them to hold position, so finally allowing us the chance to request taxi. Despite their determination to depart ahead of us, I do not believe that the other aircraft was constrained by any departure slot time.

There was little direct flight safety impact of this incident, but the effect on my state of mind just before getting airborne was marked. The other crew's aggressive attitude and determination to get away before us induced in me what can best be described as the flight deck version of road rage.

Discussion question: Why was the other aircraft clearly not ready for taxi?

Words and Expressions

regional	[ˈriːdʒən(ə)l]	地区性的 regional airport 支线机场; regional jet 支线喷气机; regional flight 地区性航班
imply	[imˈplai]	暗示
loading ramp		装货坡道
airborne	[ɛəbɔːn]	Carried by the air 升空的; 空中的; 机载的
flight deck		An elevated compartment in certain aircraft, used by the pilot, copilot, and flight engineer 驾驶舱
road rage		Violent behavior by a driver of an automobile, which thus causes accidents or incidents on roadways. It can be thought of as an extreme case of aggressive driving 野蛮行驶

Chapter 4 Taxi-out

Section 1 Dialogues

1. Requesting a Different Runway

(1) PIL Fastjet 139, ready to taxi.

CTL Fastjet 139, taxi to holding point 34 via taxiways Zulu and Fox.

PIL Fastjet 139, request to use runway 16 for departure, if it's not too much of a problem for you.

CTL Fastjet 139, that's OK. Taxi to holding point 16 via taxiways Z and A. Caution the snow blower in operation on taxiway A.

PIL Z, A to 16, Fastjet 139.

CTL Fastjet 139, Clearance amendment for you. Hilton 2 departure instead of Hilton 1.

PIL Hilton 2 departure, Fastjet 139.

(2) PIL Tower, Fastjet 256. Would it be possible to use runway 25 for departure?

CTL Fastjet 256, I'm sorry. I got an inbound that is due to land on 07 in about 10 minutes.

PIL Tower, Fastjet 256. Maybe we could wait until after he's landed.

CTL Fastjet 256, that'll be OK. I'll call you back for taxi clearance.

2. Intersection Takeoff

(1) PIL Ground, Fastjet 248. We're ready to taxi, except that our chocks haven't been removed.

CTL Fastjet 248, I'll get someone out to do it.

PIL Thanks a lot.

(A while later)

PIL Ground, Fastjet 248. Request to taxi out.

CTL Fastjet 248, can you accept takeoff from intersection D?

PIL Negative, Fastjet 248. We are pretty heavy; we need the full length for take-off.

3. Requesting a Tug

(1) PIL Ground, Fastjet 106. We've just skidded off the taxiway and we can't seem to get back on to the paving. Left gear appears to be stuck in the earth. Can you send a tug around?

CTL Fastjet 106, that's OK. I'll call a tug for you.

(A while later)

CTL Ground handling say there'll be no tug available until 2115.

(2) PIL Ground, Fastjet 2346. We are unable to continue taxiing due to unserviceable brakes and steering. Can you get a tug for us?

CTL OK, Fastjet 2346. I'll call your company maintenance for you.

4. Reporting Hazards on the Maneuvering Area

(1) PIL Ground, Fastjet 554. A car has just gone across the taxiway about 300 meters in front of us.

CTL Fastjet 554, there's no ramp vehicle reported in the area. Did you get its registration number?

PIL Negative, sir. We didn't have time. But it looked like a Coaster.

CTL Thanks, we're going to check.

(2) PIL Ground, Fastjet 751. There's a group of people on the taxiway about 200 meters ahead of us.

CTL Fastjet 751, they're doing maintenance work on the taxiway lighting, but you'll turn right before you reach them.

(3) PIL Ground, Fastjet 323. There appears to be 2 men and a wheelbarrow on the taxiway ahead of us.

CTL Roger, Fastjet 323. They should give way to you. If not, perhaps you could flash your landing lights.

PIL We've done that, but they haven't moved.

CTL Roger, Fastjet 323. Hold position, I'll send out a control van.

(4) PIL Fastjet 978, a large dog has just crossed the taxiway ahead of us.

CTL Fastjet 978, which direction was it going?

PIL It crossed us from right to left.

CTL Thank you, Fastjet 978. We'll try to get someone to catch it.

5. Technical Problems

(1) PIL Ground, Fastjet 179. We must have a flat tire on the nose gear. Can we pull in on the right-hand side of the taxiway?

CTL Fastjet 179, pull in quickly. There's a Dornier behind you. Can you taxi in under your own power or do you want to be towed?

PIL Send us a tug please, Fastjet 179.

(2) CTL Fastjet 887, I've got a small aircraft with radio failure taxiing in to the north ramp. It'll be either taxiway E or F depending on which way he goes.

PIL Roger, Fastjet 887 is holding on R.

(3) CTL Fastjet 487, stop immediately. A catering truck has just knocked an engine off your plane.

PIL Which engine? Fastjet 487.

CTL Number 4, the right outboard engine.

PIL Fastjet 487, we're shutting down all the engines and discharging fire extinguishers on number 4.

CTL Roger, Fastjet 487. The fire brigade is coming to you.

(4) PIL Ground, Fastjet 854. We're stuck halfway along taxiway P, due to a slight fuel leak on Number 3 engine.

CTL Roger, Fastjet 854. I'll send out the fire service.

(A while later)

CTL Fastjet 854, the firemen can't get near your aircraft. Can you shut down the faulty engine?

PIL We've already shut down that engine and two others. We've got Number 4 still running. Otherwise we'd lose the radio.

CTL Thanks, Fastjet 854. I'll advise the fire service.

(5) PIL Ground, Fastjet 220. Request taxi.

CTL Fastjet 220, it looks as though your Pitot head cover is still on. Would you please check?

(6) CTL Fastjet 250, there's a hatch under the aircraft that seems to be wide open.

PIL Roger, a warning light has just come on. We'll stop here, if it's OK with you, and get it latched.

(7) PIL Ground, Fastjet 198. We'll have to taxi back to the apron, our reverse buckets are inoperative.

CTL Roger, Fastjet 198. Continue straight ahead, then second left onto taxiway C to stand 14. Report parked on the stand.

(8) PIL Fastjet 968, reaching holding point 29. Request to return to stand. The wheel brakes are overheating.

CTL Roger, 968. Turn in the holding bay; take the first convenient left turn, onto taxiway J.

(9) CTL Fastjet 174, stop immediately! The Learjet ahead of you is stuck on the taxiway, due to a hydraulic trouble. We'll have you pushed back, so that you can resume taxiing via the southern taxiway.

PIL Stopping, Fastjet 174.

6. Withholding Taxi Instructions

(1) CTL Fastjet 207, your aircraft has not been cleared by customs. Customs require you to return to stand for clearance.

PIL Negative. I've got the clearance sheet together with the waybill right here with me.

CTL OK, Fastjet 207. I'll call them back and check.

(2) PIL Ground, Fastjet 269. Request taxi-out.

CTL Fastjet 269, I am unable to grant your request. The Airport Authority just told me they have impounded your aircraft.

PIL Do they have a reason for this?

CTL Negative, Fastjet 269.

(3) PIL Fastjet 3249, ready to taxi.

CTL Negative, Fastjet 3249. The police say there is a suspect on your plane. Tell your passengers that there is a technical problem and let everyone return to the terminal.

7. Cautionary instructions

(1) CTL Report before crossing runway 25. There's a snow plough at work at the intersection.

(2) CTL Caution men and equipment at work by the plane. There's a 767 bogged down

near the holding-point of runway 22R.

(3) CTL Please expedite taxi. There's an Airbus 319 gaining on you.

(4) CTL Taxi with caution. Frozen ruts have been reported near the end of the taxiway.

(5) CTL Caution when taxiing along the Dragon Air hangars. Transmission fluid has been spilt on the ramp.

(6) CTL Caution the embankment on the right-hand side of the taxiway about 100 meters from the holding point.

(7) CTL Caution! Trenches being dug for cables just off the east side the taxiway, about 300 meters from the holding-point. Workmen and vehicles have instructions to hold short of the taxiway.

8. Asking for Explanation

(1) CTL Fastjet 102, taxiway D to enter the runway and backtrack, you are number 1 for departure. Report when ready for takeoff.

PIL1 Taxiway D and backtrack, Fastjet 102.

PIL2 Tower, Fastjet 479, we have been waiting here for 3 minutes. What is the reason for his priority?

CTL Sorry, Fastjet 479, but he's got an urgent patient on board. Expect 5 minute's delay.

9. A Problem Passenger

(1) PIL Tower, Fastjet 213, a passenger has just announced that he's got a bomb in his briefcase.

CTL Fastjet 213, Roger. So, what is your intention?

PIL Fastjet 213. He's probably bluffing, but to be on the safe side, we intend to get rid of him.

CTL Roger, Fastjet 213. Enter the runway to vacate via B, and then taxiway F to stand 23. I'll notify the police for you.

10. Explaining Traffic Rules

(1) PIL Tower, Fastjet 451, we just had to make a sudden stop. I thought the Fokker was going to give way to us, but it didn't even slow down.

CTL Roger, Fastjet 451. But you should know that the pilot who sees the other air-

craft on his left should stop and give way.

PIL But I think the one who sees the other on the right should give way.

CTL Negative, Fastjet 451. That is the ICAO traffic rule and you are in China.

PIL But is there any difference?

CTL Yes, There is. And it's all declared in the AIP.

PIL I see, Fastjet 451. We are now approaching holding point 18 now.

CTL Fastjet 451, hold short of runway 18. I've got two landings on final.

11. Visibility Check

(1) PIL Ground, Fastjet 190. Request taxi to holding point of 28L to check whether the RVR is in compliance with our takeoff minima.

CTL Fastjet 190, taxi to holding point 28L.

(2) PIL Ground, Fastjet 498. We'd like to start up in about 10 minute from now. Can we expect departure from 26?

CTL Negative, Fastjet 498. There are already 5 aircraft queuing up at the holding point of 26, they are waiting till it clears a bit.

PIL What about runway 07 then?

CTL Fastjet 498, RVR is less than 150 on 07.

PIL We can take off in 100 m RVR. Fastjet 498.

CTL Fastjet 498, unfortunately, we can't confirm it's over 100 m.

PIL Usually we get permission to go to the threshold and to count the lights from there to check the actual visibility.

CTL Sorry, Fastjet 498, but we've got an aircraft taxiing out to runway 25 and the ground radar is out of service. I'll call you back.

PIL May be we could backtrack runway 08 and take off from 26.

CTL That would be OK, Fastjet 498. But you'll be Number 4 to depart. Three other aircraft which can take off in less than 150 RVR have also requested backtrack on 08.

12. Revising Departure Information

(1) CTL Fastjet 223. Be informed temperature data in the ATIS were wrong. Outside temperature is Plus 21. Continue to holding point, we'll call your dispatch and let you have revised settings by then.

13. Miscellaneous Taxi Instructions

(1) PIL Fastjet 978, ready to taxi.

CTL Fastjet 978, taxiway D4, cross runway 33, backtrack to threshold runway 12, call me back reaching 33.

PIL Taxiway D4, backtrack 12, call you back reaching 33, Fastjet 978.

PIL Fastjet 978, reaching intersection with runway 33.

CTL Fastjet 978, cross runway 33.

PIL Crossing runway 33, Fastjet 978.

CTL Fastjet 978, remain this frequency and monitor tower 121.75.

PIL Stay with you and monitor tower. Fastjet 978.

(2) PIL Ground, Fastjet 121. I'm not familiar with your airport. Could you please guide me to the runway-in-use?

CTL Fastjet 121, take the second right. I'll keep you advised.

(3) CTL Give way to the triple seven on taxiway F, crossing you from right to left. Number 2 to him. Taxi via taxiways B, F, G and A to holding point Zulu.

(4) CTL Pull in to the left. There's a Challenger overtaking you on your right.

(5) CTL Taxiways D, E and A to holding point runway 16. Keep well to the left passing the South Park, due work in progress.

(6) CTL You are taking the wrong direction, runway in use is 23, turn right and follow the yellow line to taxiway N. Watch out for the STOP sign on the left hand side of the taxiway.

(7) CTL Hold your position. You've gone too far. You missed taxiway C4. Wait there for the follow-me car.

(8) CTL Taxi straight ahead to Bravo 4.

(9) CTL Follow the A300 that is taxiing out to runway 36C.

(10) CTL You'll have to turn round at the north end of the runway.

(11) CTL Go beyond the A320 on your left, and then turn right.

(12) CTL Taxi slower. Caution for the 767 to your left.

(13) CTL Turn left from your present position, taxi north for departure runway 16.

(14) CTL Don't worry about the 737 catching you up. He is on his way to the cargo ter-

minal.

(15) CTL I don't think you've got enough space to overtake the Embraer 175.

(16) CTL Taxi via taxiway G to holding point runway 22. Report approaching the stop-bar.

(17) CTL Caution the Cessna taxiing towards you from your left.

(18) CTL Taxi with caution, taxiways are slippery, taxi via the inner taxiway.

(19) CTL Taxi southbound from your present position and I'll keep you advised.

(20) CTL After the B757 passing left to right, taxi to holding point A1 runway 18.

(21) CTL Give way to the company aircraft just coming out of L.

Words and Expressions

skid	[skid]	To move sideways 侧滑
paving	['peiviŋ]	The hard surface 道面
van	[væn]	A truck with an enclosed cargo space 箱货车
briefcase	['briːfkeis]	A portable, often flat case with a handle, used for carrying papers or books 公文箱
bluff	['bluf]	To impress, deter, or intimidate by a false display of confidence 吓唬
wheelbarrow	['wiːlbærəu]	A one- or two-wheeled vehicle with handles at the rear, used to convey small loads 手推车；独轮车
leak	[liːk]	To escape or pass through a breach or flaw 漏出
faulty	['fɔːlti]	Containing a fault or defect; imperfect or defective 有毛病的
backtrack	['bæktræk]	To taxi on a runway in the opposite direction（在跑道上）逆向滑行
hatch	[hætʃ]	An opening, as in the deck of a ship, in the roof or floor of a building, or in an aircraft 舱口
latch	[lætʃ]	To close or lock with or as if with a latch 锁住
impound	[im'paund]	To seize and hold in custody of the law 扣押
in compliance with		Acting according to certain accepted standards 符合
waybill	['weibil]	A document giving details and instructions relating to a shipment of goods 运货单

chock	[tʃɔk]	A block or wedge placed under an aircraft to keep it from moving 轮档
reverse bucket		反喷桶
inoperative	[inˈɔpərətiv]	Not working or functioning 无效的，不工作的
queue	[kju:]	To get in line 排队
snow blower		吹雪车
snow plough		A snowplough (or snow plow, US English; in UK English, snowplough or snow plough) is a vehicle, or a device intended for mounting on a vehicle, for removing snow and sometimes ice from outdoor surfaces, typically those serving transportation purposes 除雪犁
bog down		sink in 陷下
gain on		To close; get closer 逼近；靠近
rut	[rʌt]	A groove or furrow, especially one in soft earth caused by wheels 辙；槽
embankment	[ɪmˈbæŋkmənt]	A long artificial mound of stone or earth; built to hold back water or to support a road or as protection 堤
trench	[trentʃ]	A deep furrow or ditch 深沟

Exercises

Ⅰ. Translation

1. 你是否需要使用 15 号跑道全长起飞?
2. 你能否叫人帮我们撤下轮挡?
3. 滑慢点儿，注意道旁的清扫车。
4. 转弯时，左轮偏出了道面，陷在了土里，请给我们叫客梯车和摆渡车过来。
5. 我们不能继续滑行了，前轮转弯失灵，给我们叫个拖车来把我们拖回机坪。
6. 我们前方的滑行道上有个三轮摩托。
7. 你左机翼上好像有个盖板敞开着，请检查一下。
8. 滑行道末端调头，公安部门要你返回停机位。
9. 你错过了 C3 道口，在那儿等着，我叫个拖车过去，把你推回道口。
10. 跟在空客 300 后面滑行，起飞跑道 36 中。

Ⅱ. Word Study

shuttle bus		机场班车
fuel tanker		加油车
dolly	['dɔli]	A wheeled platform for moving heavy objects 平板车
motor sweeper		清扫车
snow clearing		除雪
sweeping		清扫
mowing		割草
harvesting		收割
runway inspection		检查跑道
bird scaring		哄鸟
towing		拖拽
firefighting		救火
violent	['vaiələnt]	狂暴的
threatening		有威胁的
drunkenness		醉酒
mental instability		心理不稳定
hijack	['haidʒæk]	劫持；hijacker 劫持者
subdue	[sʌb'dju:]	To conquer and subjugate 制服
calm down		安抚
weapon	['wepən]	An instrument of attack or defence in combat, as a gun, missile, or sword 武器
firearm	['faiərɑ:m]	A weapon, especially a pistol or rifle, capable of firing a projectile and using an explosive charge as a propellant 枪炮
explosive	[iks'pləusiv]	A substance, especially a prepared chemical that explodes or causes explosion 爆炸物
demand	[di'mɑ:nd]	To ask for peremptorily 要求
militant	['militənt]	A fighting, warring, or aggressive person or party 斗士
terrorist	['terərɪst]	恐怖分子
ethnic ['eθnik] origin		种族
political allegiance [ə'li:dʒəns]		政治信仰

blow up the plane		炸掉飞机
hand grenade		手榴弹
release hostage		释放人质
jump seat		A folding seat in the cockpit 折叠椅
squad	[skwɔd]	The smallest tactical unit of military personnel 班；小队
sniper	['snaipə]	A skilled military shooter detailed to spot and pick off enemy soldiers from a concealed place 狙击手
assault	[ə'sɔ:lt]	Attack 攻击；袭击
handcuff	['hændkʌf]	手拷
hands on head		手放在头顶上
abandoned air force base		废弃的空军基地
negotiator	[ni'gəuʃieitə]	谈判代表
embassy	['embəsi]	大使馆
special forces		特种部队
press conference		新闻发布会
demand boarding stairs		要求客梯车
casualty	['kæʒjuəlti]	One injured or killed in an accident 伤亡
explode	[iks'pləud]	爆炸
timed bomb		定时炸弹

Ⅲ. Diagram Study

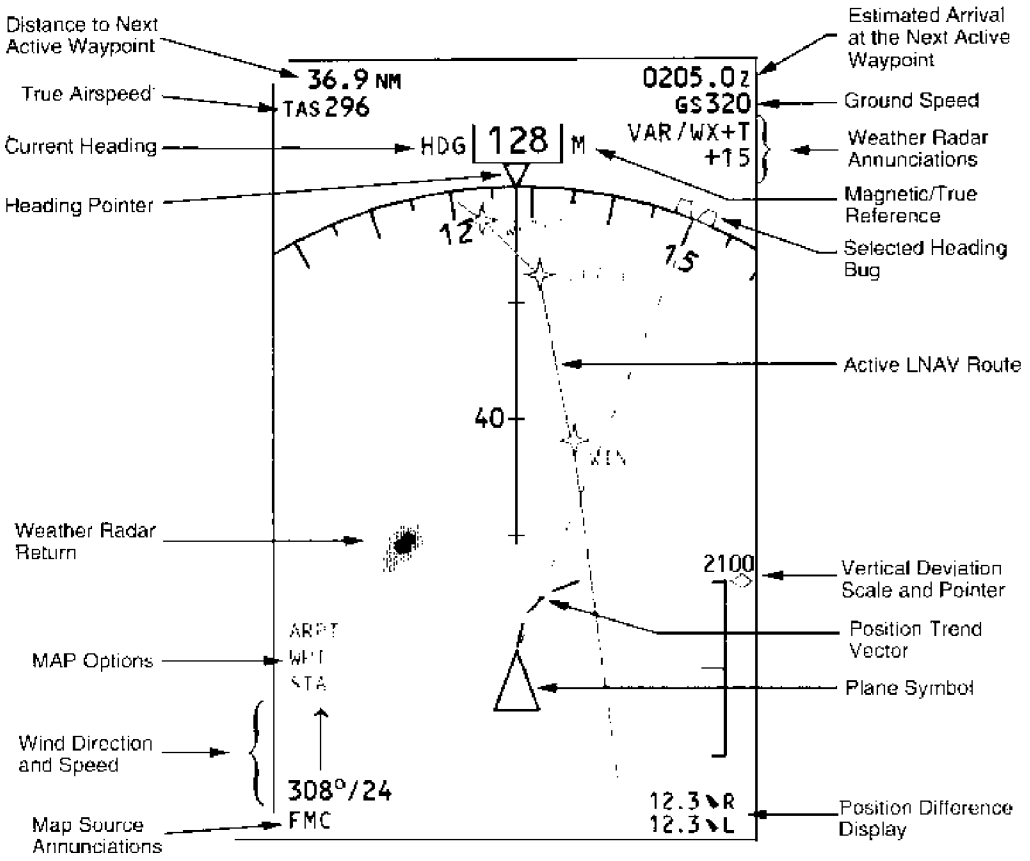

Figure 4.1 Navigation Display - Expanded MAP mode

Section 2 Supplementary Reading

Passage 1 Taxiing Close Encounter

At a large Southern European airfield we had been cleared to taxi to the holding point of the departure runway crossing an inner and outer taxiway en route.

I released the parking brake and started to move forwards. Almost immediately I saw an A320 of another airline on my left hand side clearly going much faster than we were. My sighting coincided with a call from the ground controller telling us to give way to the "opposite direction plane taxiing on taxiway Mike". The instructions were quite specific but I

had focused completely on the A320 on my left hand side, silently cursing the controller for yet again giving priority to their national carrier. As I began to follow my given route to the threshold, the A320 came to stop and I began to wonder what was going to happen next. At that moment the First Officer said "Stop!" and I immediately applied the brakes as I sensed the urgency in his voice. Then I saw it. A CRJ moving at speed; probably to help us out, coming towards us on the taxiway I was about to cross. I would say without any doubt that, had it not been for the actions of the First Officer, I would have attempted to cross the first taxiway probably causing a collision with the CRJ in the process.

My fault? I initially tried to tell myself "No". ATC should have amended our taxi instructions and told us to hold at a suitable apron holding point. They should have been more specific about the aircraft type shouldn't they? Basically, of course it was my fault. I allowed myself to become distracted at a very busy airfield at a very busy time of the night.

Thanks to the First Officer I'll get to have another go at the airfield in question in a couple of day's time but my cup of luck is a little emptier than it was and I have learned from the experience.

Discussion question: What is the cause of this close encounter?

Words and Expressions

release	[ri'li:s]	To free from something that binds, fastens, or holds back 释放；松开
parking brake		A brake operated by hand; usually operates by mechanical linkage 停留刹车
National Airline		本国航空公司
CRJ		Canada Regional Jet 加拿大支线喷气机
coincide	[ˌkəuin'said]	To happen at the same time or during the same period 碰巧同时发生
curse	[kə:s]	To invoke evil or misfortune upon 咒骂
at speed		快速地
in question		正被讨论
help out		Be of help, as in a particular situation of need 帮助
amend	[ə'mend]	To alter formally by adding, deleting, or rephrasing 修订

distract	[dis'trækt]	To cause to turn away from the original focus of attention or interest 分心
cup of luck		运气

Passage 2 An Unnecessary Distraction

Anticipating a traumatic day due to a planned changeover of support equipment during our shift. The Visual Control Room is very messy with extra and unfamiliar "electronic equipment" all over the limited workspace.

Carried out the normal quick handover on taking over the aerodrome controller position but my mind was on the perceived chaos to come later on when the new equipment was made live. I was concerned that the event had been planned to take place during the day, on a potentially busy week day, with no restrictions on the traffic being allowed to operate whilst we ATCOs tried to cope with an untried and unfamiliar system which would instantly replace the old kit. The manufacturer later admitted that they had never done a daytime changeover anywhere before.

Despite being told there was a jet aircraft backtracking the westerly runway for departure into the circuit, I had not appreciated that my colleague had actually cleared it for take-off prior to my taking over. A light aircraft then reported ready so I looked out at the runway, saw no traffic on it due to the tails of parked aircraft obstructing the view of the runway threshold, missed the contact on the Surface Monitoring Radar due to bright sunlight on the display, and cleared the light aircraft to cross immediately, believing the jet to be still backtracking. Fortunately, my colleague was still in the VCR and shouted a warning to me. I was able to stop the light aircraft just past the stop bar on the taxiway, and confirm that the jet was clear for take off when he immediately queried it, having commenced his take-off roll.

A near runway incursion with potentially disastrous consequences for which I am still not very proud and still recovering from the shock of what might have happened due to my inattention.

Discussion question: What is the cause of this incident?

Words and Expressions

traumatic	[trɔ:'mætik]	Psychologically painful 心灵创伤
change-over	['tʃeindʒ'əuvə]	A conversion to a different purpose or from one system to another, as in equipment or production techniques 转换
shift	[ʃift]	A group of workers that relieve another on a regular schedule 轮班
messy	['mesi]	Disorderly and dirty 脏乱的
handover	['hændəuvə]	To surrender someone or something to another 移交
take over		To assume the control or management of or the responsibility for 接管
chaos	['keiɔs]	A condition or place of great disorder or confusion 混乱
kit	[kit]	A set of articles or implements used for a specific purpose 成套工具
stop bar		Stop bar lights consist of elevated and in-pavement red fixtures that are installed at the runway holding position or instrument landing system (ILS) critical area holding position marking 停止灯
Surface Monitoring Radar		地面监视雷达
VCR		Visual Control Room 目视管制室
query	['kwiəri]	To express doubt or uncertainty about 询问
incursion	[in'kə:ʃən]	The act of entering or running into 袭击；入侵

Chapter 5 Takeoff

Section 1 Dialogues

1. Aborted Takeoffs

(1) CTL Fastjet 332, cleared for take off, wind 340° 16 knots.
PIL Taking off, Fastjet 332.
PIL Fastjet 332 is stopping. Takeoff abandoned, due to engine failure.
CTL Do you request taxi to the parking area, Fastjet 332?
PIL Affirm, request return to parking area. Fastjet 332.

(2) PIL Fastjet 879, takeoff aborted due to tire blowout. We slid slightly off the runway.
CTL Fastjet 879, are you able to taxi off the runway?
PIL Negative, Fastjet 879. The right gear is bogged down. Request passenger steps and buses to take the passengers to the terminal.
CTL Roger, Fastjet 879. We'll get a tug to come out to you as well.

(3) PIL Tower, Fastjet 907. Takeoff abandoned. Starboard engine is low on power.
CTL Fastjet 907, take the first convenient left, report vacated.
PIL First convenient left, Fastjet 907.
(A while later)
PIL Fastjet 907, runway vacated.
CTL Fastjet 907, do you want to try another takeoff or go back to the apron?
PIL Fastjet 907. We'd like to go back to the apron to have the engine tested. But we'll have to let the passengers get off first.
CTL Roger, Fastjet 907. Taxiway B and L to stand N23. I'll send a passenger bus for you.
PIL B and L to N23, Fastjet 907.

(4) PIL Tower, Fastjet 489. Takeoff aborted due to engine failure. We're standing on the overrun. We just managed to stop short of the localizer antennas. Every-

body on board seems to be all right. We'll just need coaches to take the passengers back to the terminal.

(5) PIL Tower, Fastjet 489. Takeoff aborted. Engine Number 2 was low on power.
CTL Fastjet 489, do you wish to taxi back to the apron or to the threshold of 25?
PIL Fastjet 489, Request backtrack to the threshold of 25 for another departure.
CTL Fastjet 489, negative. Vacate first left and contact Ground 121.7.

2. Takeoff Emergencies

(1) PIL Tower, Fastjet 4732. Request airport assistance. We've just swung off the runway due to a burst tire. The passengers are going to stay on board until you send round the rescue vehicles.

(2) PIL Tower, Fastjet 328. Takeoff aborted due to undercarriage fire. We are evacuating. Request fire service.

(3) PIL Tower, Fastjet 3458. Request immediate assistance. Nose gear collapsed at the start of the takeoff run. We're operating the slides.

(4) PIL Fastjet 596, ready for departure.
CTL Fastjet 596, cleared for take off, wind calm.
PIL Fastjet 596, taking off.
(A While later)
CTL Fastjet 596, stop immediately, I say again, stop immediately, flames coming out from left main gear.
PIL Fastjet 596 stopping.
(A While later)
PIL Fastjet 596, activating escape slides, request emergency services.

3. Thunderstorms

(1) PIL Fastjet 473, holding point 18 Left.
CTL Fastjet 473, suggest you hold there for a few minutes, the thunderstorm is rapidly approaching the climbout area.
PIL Fastjet 473, Wildo.

(2) PIL Tower, Fastjet 992. We've just been struck by lightning and we'll have to go back to the apron to check our electrics and make sure there's no damage to the airframe.

CTL Roger, Fastjet 992. Do you require the safety services to turn out?

PIL Negative. There is no risk of fire.

4. Takeoff Hazards

(1) CTL Fastjet 774, wind 150° 5 knots, cleared takeoff.

PIL Just a moment, Fastjet 774. We can see flocks of crows at the far end of runway. Can you get those birds expelled before we go?

CTL Affirm, Fastjet 774. Cancel takeoff. I'll get a bird scaring vehicle to do it.

PIL Takeoff cancelled, Fastjet 774.

(2) PIL Fastjet 241 is ready for takeoff.

CTL Fastjet 241, hold position. They're just finishing a runway inspection. The 747 that just took off may have shed a tire tread.

PIL Fastjet 241, roger. How long do you estimate the delay to be?

CTL 10 minutes, I suppose.

5. Use of Runway

(1) CTL Fastjet 917, cleared for takeoff, wind calm.

PIL Tower, Fastjet 917, if you don't have any inbound traffic, we'd like to stay on the runway for a while before we go. We wish to count the runway lights to check the actual visibility.

CTL Fastjet 917, take your time, I have neither inbound nor outbound traffic.

(2) CTL Fastjet 745, the surface wind has just changed to 070° at 10 Knots, can you still accept runway 27 for departure?

PIL Stand by, Fastjet 745. We need to check.

(A while later)

PIL Fastjet 745. We are unable to take off with such downwind. Request to use runway 09.

(3) CTL Fastjet 398. Cleared for takeoff. Surface wind 220° 30 Knots.

PIL We'll have to wait till the wind eases off. Let us know when it drops to 25 knots or less. Fastjet 398.

6. Miscellaneous Departure Clearance

(1) CTL Fastjet 880, line up.

PIL Fastjet 880 is lining up at Alpha.

CTL Fastjet 880, after takeoff, climb straight ahead to 2000 feet, and then as directed by radar.

PIL Fastjet 880. Am I cleared to roll?

CTL Affirm. Fastjet 880 is cleared for takeoff. 230°, 15 knots, gusting to 20.

PIL Fastjet 880, rolling.

(2) CTL Fastjet 245, pass the 757 at the holding point at own discretion. You are Number 1 to depart.

PIL Fastjet 245, request takeoff clearance.

CTL Fastjet 245, after departure, climb straight ahead on track. Cleared for takeoff, wind 270°, 15 Knots.

(3) PIL Fastjet 234, ready for departure.

CTL Fastjet 234, left turn after takeoff. Nineteen point four when airborne. Wind 340°, 8 Knots. Cleared takeoff.

PIL Fastjet 234, request right turn out after takeoff.

CTL Fastjet 234, unable to approve right turn.

PIL OK. Left turn out, nineteen point four, Fastjet 234 is on the roll, so long!

7. Miscellaneous Takeoff Clearance

(1) CTL Fastjet 328, take off immediately or hold short of runway.

PIL Holding, Fastjet 328.

(2) CTL Fastjet 435, take off immediately or vacate runway.

PIL Fastjet 435, rolling.

(3) CTL Fastjet 851, hold position, cancel, I say again, cancel takeoff. Aircraft is crossing the runway.

PIL Takeoff cancelled, Fastjet 851.

(4) CTL Fastjet 672, stop immediately, I say again, Fastjet 672, stop immediately. Acknowledge.

PIL Fastjet 672, stopping.

(5) CTL Fastjet 735, cleared for immediate takeoff. DC10 2 miles on final.

PIL Fastjet 735 is rolling.

(6) CTL Fastjet 838, via holding point A1 line up and wait runway 16, one aircraft to depart before you from holding point A2.

PIL Via holding point A1, line up and wait runway 16, number 2 for departure,

Fastjet 838.

8. Traffic

(1) PIL Tower, Fastjet 848. Are we cleared to take off from the 3000 mark?

CTL Fastjet 848, hold short of the runway. You're number 3 behind a Tri-star and a 757 standing at the threshold.

(2) CTL Fastjet 401, behind the landing 767, line up behind.

PIL Behind the 767, lining up behind. Fastjet 401.

(A while later)

PIL Tower, 401. Confirm the type of landing aircraft. It looks like a 737 from here.

CTL Fastjet 401. That is affirmative. It's a 737. Sorry, my slip of tongue.

PIL OK, are we cleared for takeoff now?

CTL Negative, Fastjet 401.

(A while later)

PIL Tower, Fastjet 401. If we don't get off soon, we'll have to refuel.

CTL Fastjet 401, I am unable to clear you at this time. We've got a problem; the radar has failed at ACC. Call you back.

(3) CTL Fastjet 027, after the landing company, taxi into position and hold.

PIL After the landing company, into position and hold, Fastjet 027.

(A while later)

CTL Fastjet 027, cleared for takeoff.

PIL Fastjet 027, negative. There's another aircraft lining up at the next intersection. Why did you clear him too?

CTL Fastjet 027, hold position. Cancel takeoff. I told him to hold short of the runway. He probably got it wrong.

(4) CTL Fastjet 351, will you pull over well to the left at the holding point, to let an aircraft with an earlier slot time take off before you?

PIL Roger, we'll do that, but can you say the reason for his priority?

CTL Fastjet 351, he's got an urgent patient on board.

9. Jammed Steering

(1) PIL Fastjet 329, approaching holding point 32.

CTL Fastjet 329, line up and wait.

(A while later)

PIL Fastjet 329, we have a problem, the nose wheel steering seems to be jammed.

CTL Fastjet 329, do you require a tug?

PIL Affirm. Request a tug to tow us back to the apron.

Words and Expressions

nose wheel steering		前轮转弯操纵
tire blow-out		爆胎
slid off the runway		偏出跑道
crow	[krəu]	乌鸦
expel	[iks'pel]	To force or drive out 赶走；驱逐
starboard	['stɑ:bəd,-bɔ:d]	The right-hand side of a ship or aircraft as one faces forward 右舷
tire tread		轮胎胶皮
struck by lightning		被闪电击中
airframe	['eəfreim]	The structure of an aircraft, such as an airplane, helicopter, or rocket, exclusive of its power plant 机体构架（不包括发动机）
ease off		Become less intense 缓和；减轻
pull over		To bring a vehicle to a stop at a curb or at the side of a road 靠边
overrun	[,əuvə'rʌn]	安全道
coach	[kəutʃ]	A vehicle carrying many passengers 大客车
evacuation	[i,vækju'eiʃən]	The act of evacuating or the condition of being evacuated 撤离；疏散
swing off the runway		偏出跑道
collapse	[kə'kæps]	To break down suddenly thereby cease to function 折断
threshold	['θreʃhəuld]	The beginning portion of a runway 跑道入口
takeoff run		起飞滑跑
flame	[fleim]	The zone of burning gases and fine suspended matter associated with rapid combustion; a hot, glowing mass of burning gas or vapour 火焰
slip of tongue		口误
position and hold		（美国）进跑道等待

Exercises

Ⅰ. Translation

1. 因为轮胎爆破，我们中断起飞了，停在安全道上，请派个拖车过来。
2. 你右发冒火了。
3. 我们中断起飞了，起落架失火，准备在跑道上紧急疏散。
4. 雷暴正在靠近跑道远端，你要不要等会儿再走？
5. 之前起飞的767可能拖胎了，我们要检查跑道，你原地等待。
6. 你要是没有落地飞机的话，我想在跑道上停两分钟再起飞，看看实际的跑道视程。
7. 我们得等侧风小点儿再起飞，降到10秒米以下时请告诉我们。
8. 起飞后不可以右转，航迹300，上升到2100再入航。
9. 马上停下来，跑道上有个动物。
10. 为什么让他优先起飞？

Ⅱ. Word Study

rejected takeoff/abandoned takeoff		中断起飞
Engine Pressure Ratio (EPR)		发动机增压比
Exhaust Gas Temperature (EGT)		排气口温度
Revolutions Per Minute (RPM)		转/分钟
throttle	['θrɔtl]	油门
power setting		动力设定
thrust	[θrʌst]	推力
N1		Low Pressure Rotor Speed 低压转子速度
overrun/stopway		安全道
clearway		净空道
runway shoulder		跑道道肩
grass strip		(条形) 草地
roll	[rəul]	takeoff roll 起飞滑跑；landing roll 着陆滑跑；rollout 滑跑
compressor stall/ Surge		压缩机失速/喘振
foreign object damage (FOD)		异物损伤
fan blade		风扇叶片
cancel SID		取消标准离场程序

set heading to		航向飞往
proceed to		飞向
set on course		入航
headwind		顶风
tailwind		顺风
crosswind		侧风
marginal	[ˈmɑːdʒinəl]	边缘的 marginal weather 边缘天气
infringement	[inˈfrindʒmənt]	违反
violation	[ˌvaiəˈleiʃən]	违犯
noise abatement		噪音抑制
local resident		当地居民
populated area		居住区
curfew	[ˈkəːfjuː]	宵禁
injury	[ˈindʒəri]	受伤；伤情（用于人）
damage	[ˈdæmidʒ]	损坏；伤害（用于物）

Ⅲ. Diagram Study

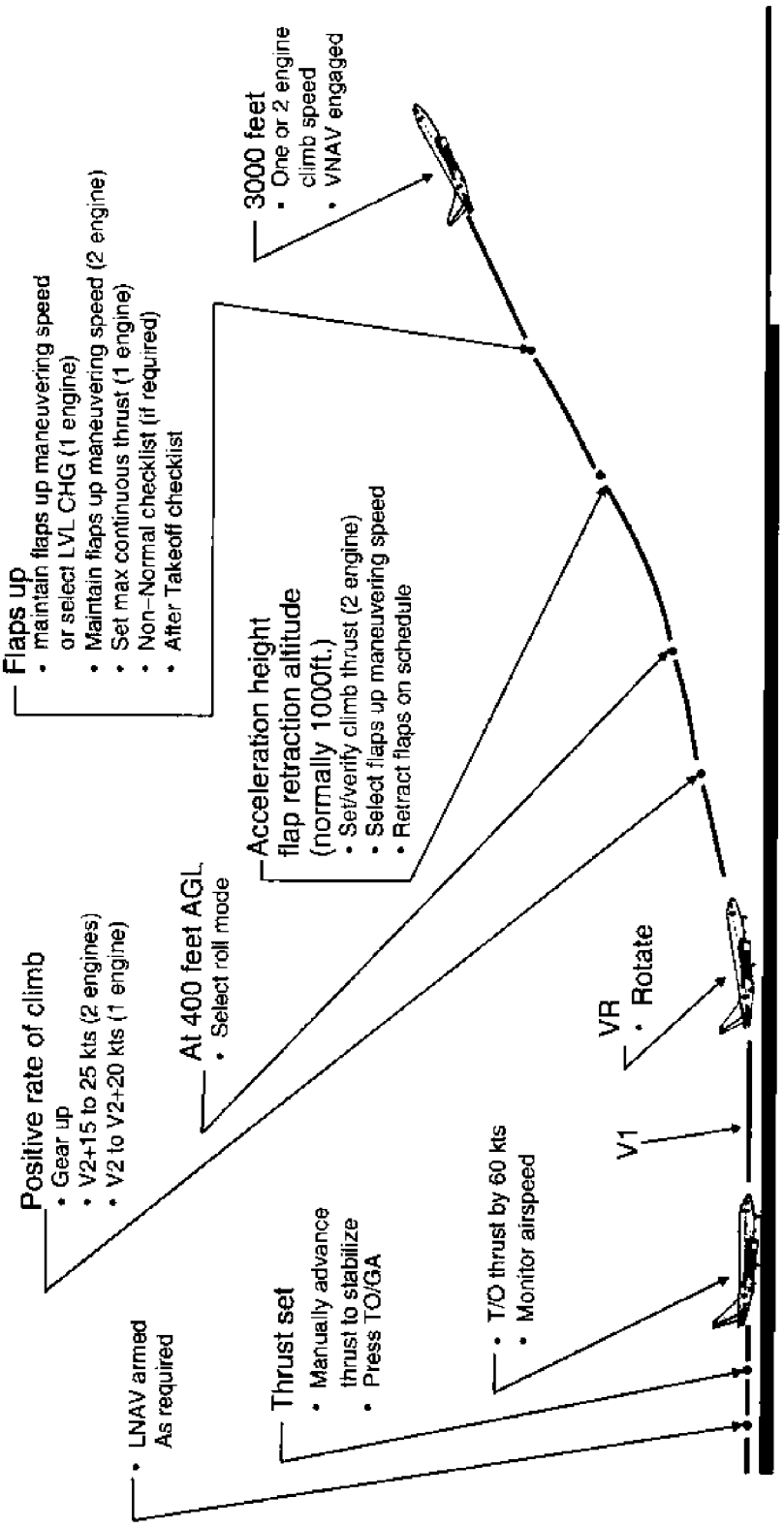

Figure 5. 1 A Typical Takeoff Operating Procedure

Section 2 Supplementary Reading

Passage 1 Wake Separation

I am tempted to write to you on the subject of wake separation, which as you say is not strictly a Human Factors issue. However, I think the exchange in CHIRP 40 showed some misunderstanding of the scope and intent of wake vortex separation rules, and of the basis process itself, and that makes it a HF issue.

Your correspondent thought that a descending aircraft with speed brakes deployed would leave "very disturbed air" behind it. So it would, but there is no reason to suppose this would increase the wake vortex risk. This assertion shows a confusion over terms (which is shared by the FAA when they refer to "wake turbulence", and apparently mean it to include jet blast too). The danger of the wake vortex and its ability to upset a following aircraft is due to the high degree of organization in the rotating vortices, which are produced as a direct result of the aircraft's lift. Turbulence due to spoilers is chaotic and is widely thought to speed the decay of the lift vortices. Indeed the only practical suggestions for alleviating the wake vortex problem that I am aware of, other than scrapping conventional aircraft design as we know it, involve schemes to get turbulence from spoilers and/or flaps somehow mixed up into the wing tip vortices and so speed their decay.

Your correspondent is absolutely right, though, in thinking that still air, by implication at high altitude, would prolong vortex life. In your reply you say that US research has shown that such vortices could continue to exist at ranges "up to 10 miles". Well for miles I fear you should read "minutes" when the conditions are right! The precise conditions for such extreme longevity are still, I think, a matter of debate among meteorologists, but there is no doubt that they exist, particularly at high altitude. The only reason commercial air transportation is still viable today, is thankfully that the presence of the ground greatly speeds vortex decay, otherwise Heathrow's capacity would be down to about a quarter of its present value.

This brings me to my main point, what should the aim of wake vortex separation be? There seems to be an assumption in your correspondent's letter, and in countless air safety reports my company receives of wake vortex encounters at glide path intercept height, that

the system has an obligation to eradicate all vortex encounters. Not only would that be impossible practically and commercially given the scale of the problem (70 miles in trail separation?!), but I believe from the air safety point of view it is unnecessary. Accidents to commercial air transport due to wake vortex effects are very rare, and as far as I am aware (and if there is any hard evidence to the contrary, please let us hear it) they are confined to encounters at very low heights, usually when the rules have been broken, albeit inadvertently. The normal reaction of an aircraft caught up in a vortex is to be rolled and thrown clear. When there is sufficient height to recover from the roll or ejection there is only a small probability of an accident. In view of continuing speculation over the cause of the Pittsburgh and Colorado Springs accidents, it would be unwise to say much on what constitutes the maximum plausible roll angle and hence the altitude above which recovery should always be possible, but I believe experience to date suggests a good guess at maximum values of about 30 degrees and 500 feet for commercial air transports in the medium category. Encounters above this height may well be very unpleasant, and for those standing in the cabin there is a definite risk of injury (an F27 incident a few years ago is a case in point), but I hope I am not being complacent if I say these are statistically insignificant in the wider context of air safety. Wave and clear air turbulence have certainly caused hull loss and death over the years; wake vortex well away from the ground has not. All these causes fade into near insignificance when compared to accident causes that are directly under crew influence, particularly CFIT (Controlled Flight Into Terrain).

I do not expect ATC to give me clearance from the preceding aircraft's vortices, though I will certainly consider it my duty to position myself slightly upwind of any heavy I can see in front and above!

Discussion question: What are the conditions under which the wake turbulence is most severe?

Words and Expressions

CHIRP		Confidential Human factors Incident Reporting Programme (UK)
speed brake		A flap on an aircraft for decreasing speed while in flight in preparation for landing 减速板
deploy	[di'plɔi]	To come into a position ready for use 展开
jet blast		发动机喷流

upset	[ʌp'set]	Disturb the balance or stability of 颠覆
chaotic	[kei'ɔtik]	Completely unordered and unpredictable and confusing 混乱的；无序的
scrap	[skræp]	To break down into parts for disposal or salvage 拆毁
scheme	[ski:m]	A systematic plan of action 计划
wingtip	['wiŋtip]	翼尖
longevity	[lɔn'dʒeviti]	Long life; great duration of life 长命
viable	['vaiəbl]	Having the ability to grow 可发展的；可行的
eradicate	[i'rædikeit]	To get rid of as if by tearing up by the roots 根除
albeit	[ɔ:l'bi:t]	Even so; although 尽管
inadvertently	[ˌinəd'və:təntli]	Thoughtlessly, carelessly, negligently 不注意地；无意地
roll angle		滚转角度
hull	[hʌl]	The main body of an aircraft 机体

Passage 2 ATC "Stop" Instruction

Although I was not on the affected flight, I witnessed the use of the "Stop immediately, acknowledge" R/T call by ATC for wholly inappropriate reasons. Thankfully the crew concerned (a non-UK operator) either ignored the instruction or didn't hear it.

The Tower made the call as the previous departing traffic reported that they may have hit a bird on take off.

Before switching to flying, I trained as an ATCO, and remember the guidance for the "Stop" command being non-existent. I'm sure that the seriousness of rejecting a take off is not fully understood by many controllers.

In my company a Co-Pilot can only call "Stop" for Fire, Engine Failure, Configuration Warning, Runway Blocked or Serious Control Difficulties. A Captain can call "Stop" for anything, but above 80 knots this should be limited to the Co-Pilots list of reasons and major malfunctions only. A dead bird is not a reason to stop.

Perhaps guidance for Controllers for the "Stop" R/T command should be along the lines of: "For life threatening reasons only, that would not be evident to the operating pilots e. g.

an aircraft going around that poses a risk of collision."

Discussion question: In the author's opinion, under what circumstances can a controller issue "Stop" instruction?

Words and Expressions

witness	['witnis]	To observe 见证
malfunction	[mæl'fʌŋkʃən]	A failure to function normally 故障
imminent	['iminənt]	About to occur; impending 即将来临的
ATCO		Air Traffic Control Officer 空中交通管制员

Chapter 6 Climb-out

Section 1 Dialogues

1. Runway Hazards

(1) PIL Tower, Fastjet 564. We ran over something on the takeoff roll, probably a hedgehog. You'd better check the runway.

CTL Fastjet 564, I beg your pardon?

PIL We hit something on takeoff. Suggest you check the runway and see what's left there.

CTL Roger, Fastjet 564. We'll do that right away, but is everything alright with you?

PIL Fastjet 564, affirm. Everything seems to be normal and we intend to continue our flight.

(2) PIL Tower, Fastjet 258. There seems to be a piece of metal on the runway near taxiway Delta. Would you please check?

CTL Roger, Fastjet 258. We'll check right away.

2. Bird Strike

(1) PIL Queenston Departure, Fastjet 6595. We've got to turn round due to bird strike. Engine Number 3 is overheating.

CTL Fastjet 6595, say your altitude.

PIL Fastjet 6595, 1500 feet.

CTL Fastjet 6595, maintain 1500 feet, turn left heading 220. You have landing priority. Advise me when you have the runway in sight.

(2) PIL Tower, Fastjet 471. We hit a big bird on takeoff; the windshield on the copilot's side is cracked; we're coming back.

CTL Roger, Fastjet 471. Do you want to approach straight away?

PIL Fastjet 471, negative. We have to burn off some fuel before landing.

CTL Roger, Fastjet 471. Climb and maintain 1500 meters and join left-hand circuit.

PIL 1500 meters and left hand circuit, Fastjet 471.

CTL Fastjet 471, how long is it going to take you, to burn off fuel?

PIL We need to burn off at least 12000 pounds of fuel, which will take about 25 minutes.

CTL Roger, Fastjet 471. Do you require emergency services?

PIL Affirm, and please advise our dispatch. Fastjet 471.

(3) PIL Kingston Approach, Fastjet 670. We've shut down Number 1 engine after a bird strike. We're coming back.

CTL Fastjet 670, do you require landing priority?

PIL Fastjet 670, negative. There is no fire warning.

CTL Roger, Fastjet 670. Turn left heading 250.

(4) CTL Fastjet 257, airborne 38, report reaching 8000 feet.

PIL Tower, Fastjet 257. We run into a flock of seagulls on takeoff, but everything seems to be normal.

CTL Fastjet 257, what is your intention?

PIL We intend to continue our flight to Queenston. But I suggest you inspect your runway right away, to see if there is any debris left on the runway.

CTL Fastjet 257, roger, thanks. We'll do that.

(After a while)

CTL Fastjet 257, they have just finished the runway inspection and found nothing.

PIL That's good. Thank you.

3. Technical Problems

(1) PIL Tower, Fastjet 3458. We're coming back due to burst tire during gear retraction. We were lucky it didn't burst in the well, but port flaps seem to have been damaged. Request emergency equipment.

CTL Roger, Fastjet 3458. Continue left turn heading 180. Level at your discretion.

(2) PIL Request return to land. We nearly stalled during the climb-out. Cargo probably shifted in the rear hold, mustn't have been tied down properly.

(3) PIL Approach, Fastjet 837. We've got a serious power loss, request immediate landing back with you.

CTL Roger, Fastjet 837. Cleared visual approach runway 34, left or right at your

discretion.

(4) PIL Fastjet 539, we're returning. We seem to have a wheel well fire. The warning light has just flashed on. Request priority landing and emergency services.

CTL Fastjet 539, Cleared to land runway 16. Emergency services have been alerted.

(5) PIL Fastjet 281, we have an engine failure. We intend to return to Kingston, but have to dump 40 tons of fuel first.

CTL Roger, Fastjet 281. Are you able to maintain altitude?

PIL Affirm. We just need to dump fuel and land.

CTL Roger, Fastjet 281. Proceed to fuel dumping area, at 5000 feet, right pattern over North Hill. Report reaching North Hill.

PIL Fastjet 281, 5000 feet over North Hill.

(A while later)

PIL Fastjet 281, reaching North Hill, ready to dump fuel.

CTL Roger, go ahead Fastjet 281. Break. All aircraft, Kingston Control. Fuel dumping in progress, on radial 240 North Hill VOR, ranging 14 to 20 NM, avoid flight below 5000 feet within 10 miles of fuel dumping track.

PIL Fastjet 281, fuel dumping completed, request approach to Kingston.

(6) PIL We've had a fire warning on Number 2 engine. We've shut it down. We'd like to come back.

(7) PIL Mayday, Mayday, Mayday. Kingston control, Fastjet 820. 21 miles west of Coral Island, 9000 feet. We've lost a cabin door and are returning to Coral Island.

CTL Fastjet 820. Roger Mayday. Are you in control of your aircraft?

4. Traffic

(1) PIL Fastjet 928, we've just come through some severe turbulence. What kind of traffic is there ahead of us?

CTL Fastjet 928, It must've been wake turbulence, there's an Airbus three eighty ahead, although normal separation was provided.

(2) PIL Tower, Fastjet 254, we just swerved to the left to avoid hitting a balloon. We are now turning back to the course.

CTL Roger, Fastjet 254, is everything OK with you?

PIL I'll have to check with the cabin crew to see if the passengers are alright,

standby for that.

CTL Fastjet 254, what was the balloon like? And which direction was it moving?

PIL It was quite a big one, at least 30 feet in diameter, red and yellow, drifting slowly to the east.

CTL Fastjet 254, it must have got away from the trade fair. Thanks for the information.

(3) CTL Fastjet 983, turn right immediately due to traffic.

PIL Turning right, Fastjet 983.

CTL Fastjet 983, traffic no factor now, turn left to rejoin the airway.

PIL Turn left to rejoin the airway, Fastjet 983.

CTL Fastjet 983, make a steeper turn due to prohibited area ahead of you.

PIL Fastjet 983, wilco.

5. Rate of climb

(1) CTL Fastjet 596, what is your rate of climb?

PIL Fastjet 596, 700 feet per minute.

CTL Fastjet 596, due to traffic, can you increase your rate of climb, to be above flight level 180 at the control boundary?

PIL Above flight level 180 at the control boundary. Wilco, Fastjet 596.

(2) CTL Fastjet 156, cancel SID, proceed to Banksville.

PIL Direct to Banksville, Fastjet 156.

CTL Fastjet 156, climb to 10400 meters at 3000 feet per minute minimum.

PIL Climbing to 10400 meters at 3000 feet per minute or greater. Fastjet156.

(3) PIL Approach, Fastjet 583 is with you, out of 2100 meters for 3900 meters.

CTL Fastjet 583, continue on the standard departure; climb to 7500 meters at 10 m/s minimum.

PIL Recleared to 7500 meters, 10 m/s minimum, Fastjet 583.

(4) CTL Fastjet 352, radar contact; climb to FL80 with speed not above 240 knots.

PIL Fastjet 352, climbing to FL80; speed not above 240.

CTL Fastjet 352, are you able to cross Lilyville above FL220?

PIL Just a second. Fastjet 352.

(A while later)

PIL Fastjet 352, Affirm, we can do it.

CTL Fastjet 352. Climb to FL350, cross Lilyville at FL220 or above, no speed re-

striction.

PIL Climbing to FL350; cross Lilyville FL220 or above; no speed restriction; Fastjet 352.

(5) CTL Fastjet 477, climb to 8900 meters, expedite until passing 8400 meters.

PIL Fastjet 477 climbing to 8900; unable expedite climb due weight.

CTL Fastjet 477, turn right 30 degrees due opposite traffic.

PIL Right 30 degrees, Fastjet 477.

6. Negotiating Cruising Levels

(1) PIL Fastjet 748, request further climb.

CTL Fastjet 748, you got same direction traffic 300 meters above you, 7 km ahead, climbing to 9500 meters. Do you have him in sight?

PIL Affirm, Fastjet 748.

CTL Fastjet 748, climb to 9200 meters, Maintain own separation and VMC.

PIL Climbing to 9200 meters, Maintain own separation and VMC, Fastjet 748.

(2) PIL Fastjet 469, we'd like to turn left a bit earlier due to weather.

CTL Fastjet 469, continue present heading till advised. Restricted area 035 is active.

PIL Roger, Fastjet 469.

CTL Fastjet 469, you can turn left direct to TL now.

PIL Turn left direct to TL. Fastjet 469 request higher level.

CTL Fastjet 469, expect higher in 10 minutes due crossing traffic.

(3) CTL Fastjet 455, recleared FL 310, route direct to Roseville.

PIL Climbing to FL310, direct to Roseville, Fastjet 455.

CTL Fastjet 455, correction to my last message, you can set course to Lilyville.

PIL Direct to Lilyville, Fastjet 455.

CTL Fastjet 455, climb and maintain FL330, that'll be final. FL370 is unavailable due to traffic.

(4) PIL Fastjet 297, we are too heavy to climb straight to FL370. May we stop at FL350 for a while?

CTL Negative, Fastjet 297. Maintain FL 330 in that case. I have opposite traffic at FL350, 30 miles ahead.

PIL Climb and maintain FL330, Fastjet 297.

(5) PIL Fastjet 352, passing FL330, we are rather heavy today. If traffic permits, we

wish to cruise climb to FL410.

CTL Fastjet 352, cleared to cruise climb between FL330 and FL410.

(6) PIL Fastjet 832, we've been maintaining this level for over 10 minutes, when can we expect to climb to our cruising level 10700 meters?

CTL Fastjet 832, you'll have to maintain this level unless you can proceed parallel offset.

PIL Affirm, Fastjet 832. We can do that.

CTL Fastjet 832, proceed offset 20 km right of the airway centerline, and then climb to 10700 meters.

PIL Offset 20 km to the right, and then climb to 10700 meters. Fastjet 832.

7. Pressurization Problems

(1) PIL Kingston Control, Fastjet 883. We are unable to control pressurization. Cabin altitude is rising fast. Request immediate descent to flight level 120.

CTL Roger, Fastjet 883. Descend to flight level 120; report reaching.

PIL Descending to FL120. Fastjet 883.

(A while later)

PIL Fastjet 883, reaching FL120.

CTL Roger, Fastjet 883, what are your intentions?

PIL Fastjet 883, we'd like to continue to Kingston at this level.

(2) PIL MAYDAY, MAYDAY, MAYDAY, there is decompression, we are making an emergency descent to FL25, heading to Princeton for emergency landing.

CTL Fastjet 822, Kingston Control. Roger, Mayday. Break, break. all aircraft between Roseville and Lilyville below flight level 290, leave the airway immediately. I say again, all aircraft between Roseville and Lilyville below flight level 290, leave the airway immediately.

8. Hazardous Weather

(1) PIL Kingston Departure, Fastjet 239. Runway heading.

CTL Fastjet 239, Kingston Departure. Radar contact; turn left heading 120, vector around restricted area; climb to one seven thousand.

PIL One seven thousand; left heading 120; Fastjet 239.

(A while later)

CTL Fastjet 239 is clear of restricted area. Continue left turn; resume own naviga-

tion direct to Roseville.

PIL Direct to Roseville, Fastjet 239.

CTL Fastjet 239, I'm painting a line of weather, which appears to be moderate to possibly heavy precipitation starting about 5 miles ahead.

PIL We're in the rain right now. It doesn't look much heavier than what we are in, does it?

CTL I got weather cutting devices on, which is cutting out the precipitation you are in now. This showing up on radar is not a solid mass. It appears to be a little bit heavier than what you are in right now.

PIL Okay, thank you, Fastjet 239.

(A while later)

CTL Fastjet 239, you're in what appears to be about the heaviest part of it now. What are your flight conditions?

PIL We're getting a little turbulence now. I'd say moderate rain.

CTL Fastjet 239, according to what I am painting, it won't get any worse than that.

(A while later)

PIL Kingston Departure, Fastjet 239. We lost both engines. Give us a vector to a clear area.

CTL Fastjet 239, continue present southeastern bound heading. China eastern is off to your left about 15 miles at fourteen and says he's in the clear.

PIL Give me a vector to Lilyville if it's clear.

CTL Okay, turn right heading 100, will be vectors to Lilyville for a straight-in approach runway 07. Your position is 20 miles west of Lilyville at this time.

PIL Right heading 100. What's Lilyville weather?

CTL Fastjet 239, Lilyville weather is 2000 scattered; estimated ceiling 3000 broken; 7000 overcast; visibility 5 miles.

PIL Okay. We are down to forty-six hundred now.

CTL Roger, Fastjet 239, do you have one engine running now?

PIL Negative, no engines. How far is Lilyville now?

CTL You're approximately 17 miles west of Lilyville at this time.

PIL I don't know whether we can make that or not. Is there anything between our position and Lilyville?

CTL Fastjet 239, negative sir. The closest airport is Lilyville.

PIL I doubt we're going to make it, but we're trying everything to get something started.

CTL Roger. Well, there is Orchidville. You're about 10 miles south of Roseville,

15 miles west of Lilyville.

PIL Give us a vector to Orchidville.

CTL Turn left heading 360, direct vector to Orchidville.

Words and Expressions

Climbout	[ˈklaimaut]	That portion of flight operation between takeoff and the initial cruising altitude
burst tire		爆胎
well	[wel]	An enclosed space for receiving and holding something, such as the wheels of an airplane when retracted 轮舱
hedgehog	[ˈhedʒhɔg]	刺猬
shift	[ʃift]	To alter (position or place) 变动
rear hold		后货舱
debris	[ˈdebriː]	The scattered remains of something broken or destroyed 碎片；残骸
swerve	[swəːv]	To turn aside or be turned aside from a straight course 突然转向
cruise climb		An aeroplane cruising technique resulting in a net increase in altitude as the aeroplane mass decreases 巡航爬升
offset	[ˈɔːfset]	偏置

Exercises

Ⅰ. Translation

1. 我们刚才起飞时撞了一群鸟，一切正常，你们最好看一下跑道上有没有留下碎片。
2. 请求返航，后货舱门可能没关好。
3. 我们正在返航，警告灯亮了，可能是轮舱失火，请求优先落地和应急设备。
4. 你能在 7800 以上过交接点吗？
5. 由于交叉活动，预计 15 分钟之后继续上升。
6. 可以目视进近，左右随你，应急设备已经在滑行道上等待了。
7. 起飞时撞鸟了，由于温度过高我们已经关掉了右发，请求返场落地。
8. 可能的话我们想巡航爬升到 FL390。

9. 我们重量太大，不能一下子上到 FL410，请求先飞 FL350。
10. 增压系统故障，请求立刻下降。

Ⅱ. Word study

sparrow	['spærəu]	麻雀
seagull	['si:gʌl]	海鸥
hawk	[hɔ:k]	隼
eagle	['i:gl]	鹰
wild goose		大雁
crane	[krein]	鹤；起重机
pigeon	['pidʒin]	鸽子
owl	[əul]	猫头鹰
scarecrow	['skeəkrəu]	稻草人
bird strike		鸟击
bird ingestion		（发动机）吸入鸟
retract	[ri'trækt]	收起
extend	[iks'tend]	put out; lower 放出
unserviceable	['ʌn'sə:visəbl]	不起作用的
out of order		失灵的
fail	[feil]	失效的
pneumatic	[nju(:)'mætik]	气动的
		pneumatic system 冷气系统
hydraulic	[hai'drɔ:lik]	液压的
		hydraulic system 液压系统
air conditioning system		空调系统
near miss		危险接近；事故征候
mid-air collision		空中相撞
hit /collide /run into		撞上
acrobatics	[ˌækrəu'bætiks]	特技飞行
loop		Flying the airplane through a vertical circle 筋斗
barrel roll		A full rotation of the airplane about its central nose-to-tail axis 桶滚
inverted flight		倒飞
split-S		The first half of a barel roll followed by the second half a loop 半滚倒转

Immelman	['ɪməlmən]	The first half of a loop followed by the second half of a barrel roll 倒转半滚
formation flight		编队飞行
air refueling/aerial refueling		空中加油
helicopter	['helikɔptə]	直升机
airship	['ɛəʃip]	飞艇
banner	['bænə]	标幅
free balloon		自由气球
bomber	['bɔmə]	轰炸机
fighter	['faitə]	战斗机
glider	['glaidə]	滑翔机
unmanned aircraft		无人机
kite	[kait]	风筝
ultra-light aircraft		超轻型飞机
copter	['kɔptə]	Helicopter 直升机
tanker	['tæŋkə]	空中加油机；油罐车
seaplane	['si:plein]	水上飞机
twin jet		双发喷气机
tri-jet		三发喷气机
jumbo	['dʒʌmbəu]	大型飞机
commuter	[kə'mju:tə]	支线机
executive jet		公务喷气机
turbo-prop		涡桨飞机
turbo-jet		涡喷飞机
unable	['ʌn'eibl]	不能 Unable to comply 无法遵从
unavailable	['ʌnə'veiləbl]	不可用；没得用
optimal	['ɔptiməl]	最佳的
preferable	['prefərəbl]	更好的；有利的
desirable	[di'zaiərəbl]	理想的
track	[træk]	航迹
profile	['prəufail]	剖面
trajectory	['trædʒiktəri]	轨迹
severe	[si'viə]	严重的；剧烈的；恶劣的
moderate	['mɔdərit]	中度的
light	[lait]	轻度的

Ⅲ. Diagram Study

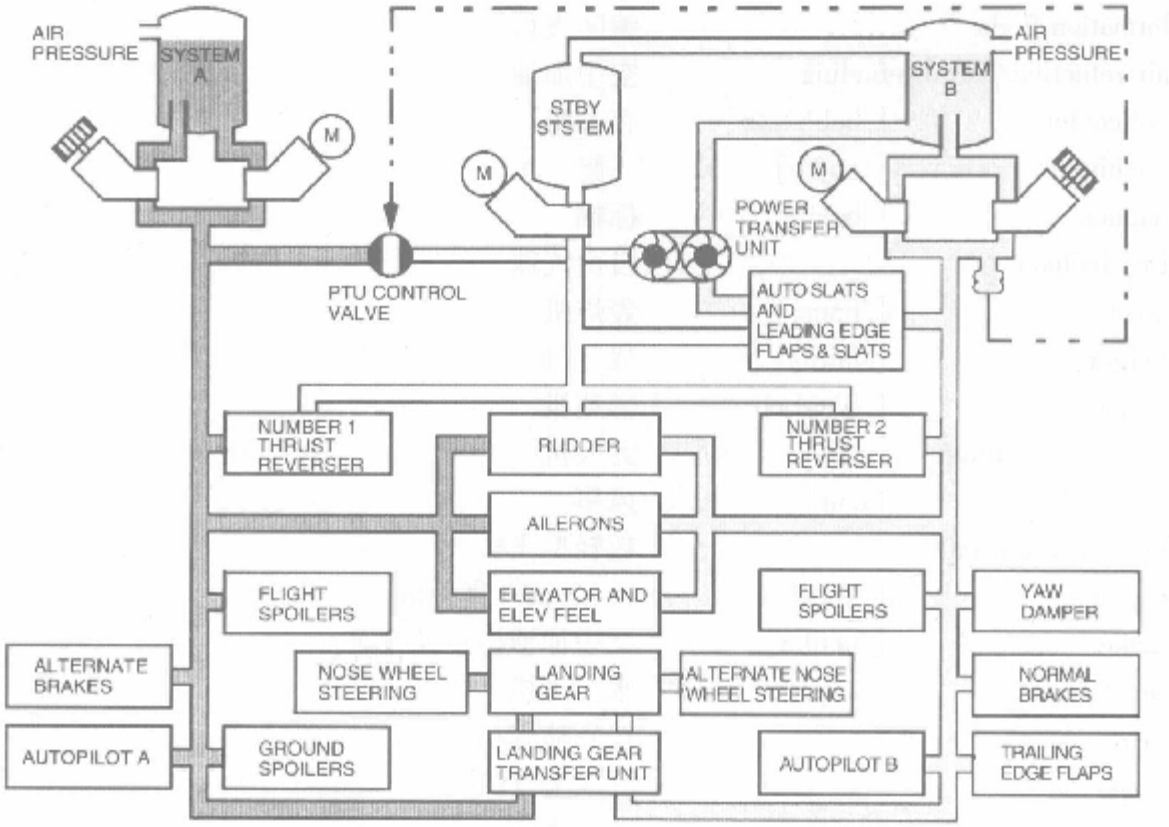

Figure 6. 1 A Typical Airplane Hydraulic Power Distribution

Section 2 Supplementary Reading

Passage 1 What the Man Really Said . . . !

For a variety of reasons, we managed to "bust" an altitude by 3000 feet on initial climb out. On taxi out, clearance was given by ATC as follows "Cleared to Bahrain, Flight Planned Route, via SID 6, FL 310, Squawk 2345" . The SID was ahead to a beacon approximately 8 miles away and then a left turn to track 340 degrees. The engineer and I wrote down the clearance and FL 310 was set in the "Altitude Window" .

It was a hazy morning and while we lined up for departure, a light aircraft was given clearance to take off to transit to a nearby airfield with a left turn after take off. The aircraft took off and began a left turn just as it disappeared from our view into the haze.

Tower asked him to call when clear of the departure lane, which he did, and then tower said to us "Cleared take-off, climb 4000 feet before turning left, once airborne contact Departure".

I interpreted this as a "No left turn till passing 4000 feet" clearance, which seemed sensible with a light aircraft transiting somewhere off to our left but hidden in the haze.

Just before we began the take off the engineer said "shall we set 4000 feet in the window?" I replied that we were cleared to 310, with no left turn till past 4000 feet. The captain thought about it then agreed with me.

Once airborne, the captain asked me to keep a good lookout and we all kept our eyes peeled till out of the haze at about 3500 feet. The after take-off checks were then completed and finally I checked in with Departure saying that we were "in the climb, passing FL 70 for 310". His reply was "Negative, maintain 4000 feet". We stopped the climb and negotiated leveling at FL 70, and were reprimanded for climbing above a "clearance" of 4000 feet. We queried this "clearance" once but were told that Tower should have said we were cleared to 4000 feet on take off. Further climb was swiftly given and we continued on our way - somewhat subdued.

It seems to me that there were several factors involved in this infringement:

1) An element of poor English by tower controller giving our take off clearance.
2) Pre-occupation with hazard of other departing traffic (leading me to make assumptions about our clearance to take off?)
3) CRM: I was fully confident that my interpretation of the clearance was correct, and when the engineer queried it I thought he'd misunderstood the clearance. My confident statement, to his unassertive question led to what was, in hindsight, a poor decision. If I had thought for one moment there was any real doubt as to our exact clearance I would have requested clarification from ATC. As it was, we missed this opportunity to prevent this incident happening.
4) Late check in with Departure meant we were through our cleared altitude before we spoke to him. If I had checked in sooner after take off and said we were climbing to FL 310 then he could have picked up the problem before it occurred.

In summary, I blame myself for misinterpreting our clearance and not checking in with Departure much sooner after take off. The problem was compounded by an ambiguous ATC

clearance.

Subsequently, the Flight Engineer repeated that he believed we were only cleared to 4000 feet. If he had only been more assertive then we might have resolved the problem prior to take off.

Fortunately, once out of the haze we were good VMC but if there had been poor weather and arriving traffic (the arrival beacon is the same as the beacon we were climbing towards on the SID) then the potential for an accident would have been there.

I have learned from this incident, perhaps there is a useful lesson for others too.

Discussion question: What lessons can be learnt from this incident?

Words and Expressions

level bust		A level bust is any deviation from an assigned altitude or flight level 上（下）错高度
Bahrain		巴林群岛
hazy	[ˈheizi]	Atmospheric moisture, dust, smoke, and vapour that diminishes visibility 阴霾天气
transit	[ˈtrænsit]	To pass over, across, or through 穿越；飞跃
keep one's eyes peeled		Have the same meaning with "Keep one's eyes open" 睁大眼睛
check in		报道；检查；核对
negotiate	[niˈgəuʃieit]	商议
reprimand	[ˈreprimɑːnd]	To criticize for a fault or an offence 训斥
swiftly	[ˈswiftli]	In a speedy or rapid manner 很快地；即刻
subdue	[sʌbˈdjuː]	To make less intense or prominent 减弱
preoccupation	[priːˌɔkjuˈpeiʃən]	With something on mind 一心想着
CRM		Cockpit Resources Management 驾驶舱资源管理
hindsight	[ˈhaindsait]	Understanding the nature of an event after it has happened 事后才懂得
compound	[ˈkɔmpaund]	Combine 再加上

assertive	[əˈsəːtiv]	坚持己见
VMC		Visual Meteorological Conditions 目视气象条件
SID		Standard instrument departure 标准仪表离场

Passage 2 Blocked Frequency

The problem began immediately after transfer from the Tower to the Departure Sector Frequency. We did not realize at the time, but when this frequency change occurred, at least one microphone became permanently live, blocking the departure frequency.

We were very busy at this stage of the flight, as the aircraft was close to Maximum Take-off Weight and required careful handling during flap retraction to ensure that flap limit speeds were not exceeded. Additionally, we had a reasonably tight turn to make shortly after departure; our priorities were on flying an accurate departure, keeping on the planned track, at exactly the right speeds.

We became suspicious that there was a radio problem as we did not receive any reply when we first called Departure Control, nor could we hear anybody else on the frequency. We then began a process of trying to pinpoint what was causing the problem, by switching headsets and trying different transmitters. In the meantime we followed the SID and leveled out at the block altitude of 6000 feet. We were not aware that we had a permanently live microphone, nor could we hear any transmissions.

Eventually, we believed we had fixed the problem when we were able to hear ATC calling us. I recall we were given a heading to fly and instructed "not to acknowledge". This was the first transmission we had heard in approximately five minutes. I am reasonably confident that we did not reply to this transmission, however, there is a chance that we may have done - it is a strong habit to read-back clearances and we may have done so automatically, especially as our workload was high.

We declared a PAN, as only one radio was working and we were not confident it would remain operational. After radar vectors over the sea we dumped fuel and returned for an overweight landing.

I would like to make the following points:

1) This problem initially precluded us from hearing ATC instructions. If we transmitted

after being requested not to, this was probably because we had a stuck microphone.

2) I concede that we may have read back a clearance despite being told not to acknowledge-if that occurred, it was due to habit.

3) When two way communications were re-established, ATC were incredibly helpful, keeping us on the same frequency until after we had landed. It turned out that selecting the new frequency after departure had initiated the whole sequence of events, so it is just as well we stayed on the one frequency.

Discussion question: What happened after the malfunction of one radio?

Words and Expressions

flap retraction		收襟翼
tight turn		急转弯
pinpoint	[ˈpinˌpɔint]	To look for and discover 查明
dump fuel		放油
preclude	[priˈkluːd]	To prevent 排除
concede	[kənˈsiːd]	To admit 承认

Chapter 7 En-route

Section 1 Dialogues

1. Circumnavigating Adverse Weather

(1) PIL Fastjet 312, request 20 degrees heading change right of track to avoid build-ups.

CTL Roger, Fastjet 312. What will your heading be?

PIL Heading 250°, Fastjet 312.

CTL Fastjet 312, heading change approved. Report clear of weather.

(A while later)

PIL Fastjet 312, we're clear of CBs now.

CTL Roger, Fastjet 312, turn left heading 230 to come back on track.

(2) PIL Queenston Control, Fastjet 857. We have an indication of severe weather 30 km ahead. Request to offset 50 km to the right.

CTL Fastjet 857, Queenston Control. Negative. Due to the restricted area, you can offset only 20 km to the right. Or you can offset to the left.

PIL In that case, we'll deviate to the left. Fastjet 857.

(3) PIL Fastjet 596, could we have a slightly lower flight level? We're experiencing a moderate chop at this level.

CTL Fastjet 596, I've had reports of light turbulence at all adjacent levels.

PIL Roger. Thanks. Fastjet 596. But we still like to try a different level.

CTL Fastjet 596, descend to 9000.

PIL Descending to 9000, Fastjet 596.

2. Onboard Illness

(1) PIL Princeton Control, Fastjet 231, we have sort of an emergency here, 30 passengers, plus 1 crewmember are taken ill, probably food poisoning. We've got to land at a suitable aerodrome as soon as possible.

CTL Roger, Fastjet 231. Understand your passengers and crew are suffering from probable food poisoning. You have Lilyville 90 km ahead of you and Princeton 120 km behind you. Where would you like to go?

PIL We'll divert to Princeton.

CTL Fastjet 231, turn right heading 210 for Princeton, and descend to flight level 110 initially.

PIL Right heading 210, level 110, Fastjet 231.

CTL We have notified Princeton. Medical service will be ready on your arrival at Princeton.

PIL Thanks Princeton, and now we have a dozen more passengers struck ill.

CTL OK, Fastjet 231. I got it. And doctors need to know about their symptoms.

PIL They all have acute pains in abdomen, some are vomiting violently.

CTL Roger, doctors say that oxygen can be provided to those serious patients and they will be meeting you on your arrival at Queenston.

PIL We are doing that. Thanks.

CTL Fastjet 231, continue descent to 7,000 feet on Princeton QNH 996.

PIL 7000 feet on 996. Fastjet 231.

(2) PIL Fastjet 725, request divert to Lilyville. A passenger is seriously ill, probably a stroke.

CTL Roger, Fastjet 725. Turn right heading 290. I'll tell Lilyville you require medical assistance on landing.

PIL Turning right 290, Fastjet 725.

3. Fire on Board

(1) PIL MAYDAY MAYDAY MAYDAY, Princeton Control, Fastjet 165. We have a fire in the hold. We are making an emergency descent to FL30, leaving FL310, left of Green 4, heading to Princeton for emergency landing, please advise. Present position, radial 040, 50 miles from Roseville VOR.

(2) PIL MAYDAY, MAYDAY, MAYDAY, Fastjet 909, emergency descending due to a fierce fire in the cabin.

CTL Fastjet 909, roger MAYDAY. Advise when you are level. Break, all stations stop transmitting, MAYDAY.

PIL Fastjet 909, leveling at flight level 110, give me a vector to the closest land please, we may not be able make it to the airport.

CTL Fastjet 909, take a heading of 280. You are 140 miles out from Coral Island. I

am sending out an escort plane to you.

PIL 280, OK. And we may have to ditch, we got smoke in the flight deck now.

CTL Fastjet 909, understand you may have to ditch. I'll alert rescue ship for you.

(3) PIL Pan Pan, Pan Pan, Pan Pan, Fastjet 5503. We have smoke in the cockpit. Request immediate return to a convenient airport, I guess, that is Palm Island.

CTL Fastjet 5503, Roger. Is it Palm Island you want to go?

PIL Palm Island, I guess. We need the weather first. We are starting a right turn now.

CTL Fastjet 5503. Would you prefer to go to Coral Island?

PIL Standby.

(A while later)

PIL Affirmative, we prefer Coral Island from our present position.

CTL Fastjet 5503, proceed direct to coral island, descend now to FL290.

PIL Level 290 to Coral Island, Fastjet 5503.

CTL Fastjet 5503, you are cleared down to 3000 feet and free to level off at any intermediate altitude if you wish.

PIL At the time we are descending to 8000 feet. We are cleared at any time to 3000 feet. I'll keep you advised.

CTL OK, Fastjet 5503. Can I vector you to set up for runway zero-six at Coral Island?

PIL That'll be fine.

CTL Fastjet 5503, turn left heading 030. It'll be a back course approach for runway zero-six. The localizer frequency is 109.9. You've got 30 miles to fly to the threshold.

PIL We need more than 30 miles. Fastjet 5503.

CTL Fastjet 5503. When you have time, could I have the number of souls on board and your fuel onboard please for emergency services?

PIL At the time, fuel on board is 20 tons. We must dump some fuel. May we do that in this area during descent?

CTL Fastjet 5503, Negative. Turn to the left, heading 200, which will take you to the dumping area. It will be about 10 miles off the coast. You will still be within about 25 miles of the airport.

PIL Roger, turning left heading 200. In that case we're descending at the time to 10000 feet for fuel dumping.

CTL OK, Fastjet 5503. Maintain 10000. Standby for fuel dumping. I'll advise you

when you are over the water and it will be very shortly.

PIL That's fine with us, please tell us when we can start to dump fuel.

CTL Fastjet 5503. You can block between 12000 and 5000 feet, if you wish. Fuel dumping area is just 5 miles ahead.

PIL Cleared between 5000 and 12000. Standing by to dump, Fastjet 5503.

CTL Fastjet 5503. You are cleared to commence fuel dump on the track and advise me when the dump is complete.

(4) PIL MAYDAY MAYDAY MAYDAY, Queenston Control, Fastjet 662. We have fire in the rear toilet. We are descending to FL30. Request an emergency landing at Queenston. Position: 50 miles west of Queenston. Heading 075.

CTL Fastjet 662, Queenston Control, roger MAYDAY. Break. All stations on 126.3 stop transmitting, MAYDAY.

(A while later)

PIL MAYDAY. Queenston, Fastjet 662. Fire now under control. Cancel distress.

CTL Roger, Fastjet 662. MAYDAY, all stations distress traffic ended.

(5) PIL MAYDAY MAYDAY MAYDAY, Queenston Control, Fastjet 234 have intercepted a MAYDAY call from Fastjet 914, I say again, Fastjet 914, engine failure, forced landing, 20 miles north of Lilyville, 1000 feet descending, heading 110, over.

CTL Fastjet 234, Queenston control, Roger your relayed MAYDAY from Fastjet 914.

4. Electrical Failure

(1) PIL Fastjet 506, we have lost all electrical power, except the emergency circuit. Request to divert immediately to Roseville.

CTL Roger, Fastjet 506. turn left heading 030; descend to FL150.

PIL Turning left heading 030; leaving FL330; descending to level 150; Fastjet 506.

5. Fuel Emergency

(1) PIL Fastjet 715, we have a serious fuel leak, request divert to Princeton.

CTL Fastjet 715, turn right now, heading 280, descend to FL110.

PIL Turning right 280, leaving level 180, descending to FL110, Fastjet 715.

CTL Fastjet 715, do you require emergency assistance at Princeton?

PIL Fastjet 715, I am not sure for the time being. Possibly.

(2) PIL Princeton Control, Fastjet 398. Can you advise the nearest field? We have a possible fuel problem.

CTL Fastjet 398. Proceed direct to Coral Island FL390. You're 130 miles from Coral Island. Are you declaring an emergency?

PIL Not for now. No assistance required yet. Fastjet 398.

(A while later)

PIL. We have lost one engine, engine flame out. Declaring fuel emergency, Fastjet 398.

CTL Roger, Fastjet 398. I can see you on my radar. You are 75 miles from Coral Island airfield.

PIL Mayday Mayday Mayday, Fastjet 398. We have lost both engines due to fuel starvation. We are gliding now.

CTL Fastjet 398. You are 40 miles out, heading is good.

PIL We are trying to make the runway. Please describe runway heading and length.

CTL Fastjet 398, runway is 33 and ten thousand eight hundred and sixty five feet long, airport is dead on your present heading, please advise when you have it in sight.

PIL Fastjet 398, we cannot see the airport. We'll tell you when we can. Do you have our distance from threshold now and weather please?

CTL Fastjet 398, you're 8 miles out according to my radar; airspeed 280 knots according to our reading; visibility unlimited; you should have the airport in sight.

PIL Negative, until now we can not see the runway. Fastjet 398.

CTL Fastjet 398, you are six miles from threshold at this time, heading is good. Emergency equipment is standing by.

6. Unlawful Interference

(1) CTL Fastjet 867, confirm you are squawking 7500?

PIL. Affirm, a man has taken a stewardess as hostage in the rear lavatory and threatens to kill her unless we go to Blacktown.

CTL Fastjet 867, understand your situation. What is your intention?

PIL We intend to continue to Queenston, and the security guard on board is trying to calm him down. Please notify Queenston.

CTL Roger, Fastjet 867. We'll do that. Can you find out his seat number?

PIL OK, I'll call you back.

(A while later)

PIL He was sitting in 6E.

CTL Roger, Fastjet 867. 6E. Just confirm he is in the rear lavatory with one stewardess?

PIL Affirm, in the rear lavatory.

CTL Fastjet 867, do you know the sort of weapon he's got?

PIL Negative, no idea.

CTL Roger, Fastjet 867, continue now with Queenston Control on 121.65. He's been informed about your situation.

PIL 121.65, Fastjet 867.

(2) PIL We just had an attempted takeover onboard the airplane. Give me a vector to Queenston please.

CTL Fastjet 784, fly heading 095 direct to Queenston. Is the situation under control?

PIL Affirm, we have knocked him out, but my copilot is wounded; we need an ambulance on landing.

CTL Fastjet 784, fly heading 090, and the airport is 43 miles ahead. Ambulances will be ready.

PIL What is my direction to Queenston?

CTL Fastjet 784, you are eastbound at this time; the airport is about 40 miles one o'clock. Proceed direct to Queenston, expect runway 11L, with QNH 1010.

PIL Do you understand we are declaring an emergency? We need the security to meet the airplane; we'll stop on runway if we can.

CTL Fastjet 784, affirm. All that has been taken care of.

(A while later)

CTL Fastjet 784, verify situation is still under control.

PIL Well, it's sort of under control. I'll come to land on 11R.

CTL Fastjet 784, runway 11R, you are cleared to land on 11R; the wind is 050 at 8 m/s.

7. Bomb on Board

(1) CTL Fastjet 177, Queenston Control. Your company has informed us you may have a bomb on board.

PIL Do they know anything about the type of bomb?

CTL Fastjet 177, Negative, sir.

PIL Diverting immediately to Coral Island, request emergency services on landing. Fastjet 177.

(2) PIL Control, Fastjet 174. Descending out of 9000 meters due to explosive decompression, declaring an emergency.

CTL Fastjet 174, understand you are making an emergency descent, due to depressurization.

PIL Affirm. Find me an aerodrome for landing please.

CTL Fastjet 174, the nearest aerodrome is Queenston, elevation 245 meters; the runway is 2500 meters long, 45 meters wide.

PIL That's fine. Give us a heading to it.

CTL Fastjet 174, turn right heading 050. You have 90 km to the aerodrome. Descend at your discretion.

PIL Heading 050.

CTL Fastjet 174, do you have full control of your plane?

PIL Affirm, and we are going to need medical assistance on landing.

CTL Fastjet 174, ambulances are on the way. When able, give me souls-on-board and fuel-on-board?

PIL We have 95 passengers plus 8 crewmembers.

CTL And how many are injured, Fastjet 174?

PIL I have no idea yet. We have no contact with our cabin attendants.

8. Traffic Conflicts

(1) PIL Fastjet 465, a small jet has just crossed us at about the same level.

CTL Fastjet 465, what sort of a small jet?

PIL It was a silver grey fighter with missiles hanging under the wings.

CTL Roger, Fastjet 465. Which direction is it going?

PIL We have lost sight of it. But it was eastbound at the time.

CTL Roger, Fastjet 465. We got no information about this traffic and we don't have it on our secondary radar.

PIL We'll file an Airprox report after landing. Fastjet 465.

(2) PIL Fastjet 593, we've just had to dive to avoid colliding with a converging jumbo jet.

CTL Do you have any other details? Did you see the type or the markings?

PIL It was a white jet, that's all we know.

CTL Do you wish to file an air-miss report?

PIL Affirm, Fastjet 593. It was a very close thing. I'll check if the passengers are OK.

PIL Fastjet 593, six passengers have been badly bruised, but fortunately we have a doctor on board, so we'll continue on our route.

CTL Roger, Fastjet 593.

(3) CTL Fastjet 228, you have traffic 3 o'clock, 5 miles, closing.

PIL Looking out, Fastjet 228.

(A few seconds later)

PIL Fastjet 228, negative contact. Request vectors.

CTL Fastjet 228, Turn left heading 330.

PIL Left heading 330, Fastjet 228.

CTL Fastjet 228, disregard. The target has changed course.

9. Military Encounter

(1) This is Paradise Navy warship, Request to remain clear.

(2) Unidentified aircraft on course 205, speed 303 knots, altitude 4000 ft, this is a Paradise Navy warship 40 miles from you, you are approaching a Paradise Navy warship operating in international waters, request to state your intentions, over.

(3) Unidentified aircraft on course 310, speed 300 knots, altitude twenty-nine thousand feet, this is a Paradise Navy warship 37 miles from you, you are standing into danger and maybe subjected to Paradise defensive measures.

(4) PIL Queenston control, Fastjet 425, we are being intercepted by two fighter aircraft.

CTL Fastjet 425, they say your clearance has expired. Switch to 243. 0 megahertz to contact with the intercepting aircraft.

10. Stabilizer Failure

(1) PIL Fastjet 372, we are in a dive here.

CTL Fastjet 372, say again.

PIL Fastjet 372, we are out of 26 thousand feet in a dive. We've lost vertical control of our airplane.

CTL Fastjet 372, roger.

PIL We are at 270. OK, now we have it back under control here.

CTL Fastjet 372, say altitude you'd like to maintain.

PIL Fastjet 372, we are at 24 thousand feet, kind of stabilized. We are gonna do a little troubleshooting. Can you give me a block altitude between 20 and 25?

CTL Fastjet 372, maintain block altitude FL200 to FL250.

PIL Roger, thank you.

CTL Fastjet 372, do you have it under control?

PIL We've got some control of the plane by thrust, but no control of the elevator. Request to proceed to Sandy Island for landing.

CTL Fastjet 372, fly heading 320, descend at your discretion. Emergency services will be standing by at Sandy Island.

11. Fuel Dumping

(1) PIL Control, Fastjet 593. We've been having an unexpected strong tailwind all the way en route. Request to jettison 10 tons of fuel en route to avoid overweight landing.

CTL Fastjet 593, cleared to dump fuel along the route, to complete before reaching the coastline.

PIL Roger, we'll start dumping fuel right now to finish before reaching the coastline.

12. Stowaway

(1) CTL Fastjet 907, your departure airport says you might have a stowaway in your wheel well, descend immediately to FL100.

PIL Descending to FL100, leaving FL290 now, Fastjet 907. (A while later)

PIL Fastjet 907 is now maintaining FL100. Do they have any idea which wheel well he could be hiding in? We'll try to find him.

CTL Negative, Fastjet 907. The airport security caught a boy on the airside of the aerodrome, who says his fellow has sneaked into your aircraft.

Words and Expressions

to take ill (to be struck ill)		Take sick or get sick; become ill 生病
poison	['pɔizn]	A substance taken internally or applied externally that is injurious to health or dangerous to life 毒药

symptom	[ˈsimptəm]	Any sensation or change in bodily function that is experienced by a patient and is associated with a particular disease 症状；征兆
acute	[əˈkjuːt]	Extremely sharp or intense 剧烈的；强烈的
abdomen	[ˈæbdəmən]	腹部
vomit	[ˈvɔmɪt]	To eject part or all of the contents of the stomach through the mouth, usually in a series of involuntary spasmic movements 呕吐
depressurize	[ˌdiːˈpreʃəraɪz]	To reduce the pressure of air or gas within (a chamber or vehicle, for example) 失压
emergency circuit		应急电路
fierce	[fiəs]	Extremely severe or violent 极其剧烈的；极为猛烈的；可怕的
escort	[isˈkɔːt]	One or more vehicles accompanying another vehicle to guide, protect, or honour its passengers 护卫，护送，护航
alert	[əˈlɜːt]	To notify (someone) of imminent danger or risk 警告；通知
rescue	[ˈreskjuː]	To set free from danger or imprisonment 救援
dive	[daiv]	To descend nose down at an acceleration usually exceeding that of free fall 俯冲
collide	[kəˈlaid]	Crash together with violent impact 相撞
converge	[kənˈvɜːdʒ]	To tend toward or approach an intersecting point 会聚
bruise	[bruːz]	To injure the underlying soft tissue or bone of (part of the body) without breaking the skin, as by a blow 撞伤
hostage	[ˈhɔstidʒ]	A person held by one party in a conflict as security that specified terms will be met by the opposing party 人质
chop	[tʃɔp]	A short irregular motion of waves 颠簸
garble	[ˈgɑːbl]	Make false by mutilation or addition; as of a message or story 断章取义；混淆 Your transmission was garbled 你发话被干扰
disregard	[ˌdisriˈgɑːd]	To pay no attention to 忽视
troubleshoot	[ˈtrʌblʃuːt]	To eliminate or settle problems with 排除故障

block altitude		A block altitude is an altitude assignment that permits an aircraft to operate between upper and lower limits 高度区间
missile	[ˈmisail,-səl]	An object or weapon that is fired, thrown, dropped, or otherwise projected at a target; a projectile 导弹
Airprox	[ɛəˈprɔks]	The code word used in an air traffic incident report to designate aircraft proximity 失去间隔事件报告
jettison	[ˈdʒetisn,-tizn]	To cast overboard or off 抛弃；丢弃
attempt	[əˈtempt]	To try to perform, make, or achieve 尝试
wound	[wuːnd]	Cause injuries or bodily harm to 受伤
declare	[diˈklɛə]	To make known formally or officially 宣布
verify	[ˈverifai]	To confirm 核实
decompression	[ˌdiːkəmˈpreʃən]	The act or process of decompressing 失压
souls on board		Number of crew and passengers 机上人数
stowaway	[ˈstəuəˌweɪ]	A person who hides aboard a ship or plane in the hope of getting free passage 偷渡者
wheel well		轮舱
airside	[ɛəsaid]	1) the part of an airport used by aircraft for loading and unloading and takeoffs and landings; 2) the area beyond security checks and passport and customs control in an airport terminal. 空侧

Exercises

I. Translation

1. 你在 FL330 上有颠簸了吗?
2. 请求向右偏 20 公里绕飞天气。
3. 由于航线右侧有禁区，你只能向左绕飞。
4. 有位旅客患了急病，可能是中风，请求备降武汉并要求医务援助。
5. 后洗手间起火了，火情在迅速蔓延，请立刻引导我们就近机场着陆。
6. 我们可能在严重漏油，或许只能飞 30 分钟了，请给我们找个合适的机场紧急着陆。
7. 有人在前厕所抓了一个空姐当人质，要我们飞往 XX 城。

8. 我们接到一个匿名电话（anonymous call）说你飞机上有炸弹，你有何打算？
9. 我们不能下，TCAS 有 RA 告警。
10. 我们现在有点儿可以控制飞机了，但要排除故障，给我们空出几个高度层来。

Ⅱ. Word Study

forecast	[ˈfɔːkɑːst]	预测；预报
synoptic	[siˈnɔptik]	概要的；synoptic chart 天气图
ceiling	[ˈsiːliŋ]	The altitude of the lowest layer of clouds 云幕高度
precipitation	[priˌsipiˈteiʃən]	降水
thunderstorm	[ˈθʌndəstɔːm]	雷暴
sandstorm	[ˈsændstɔːm]	沙暴
dust storm	[ˈdʌststɔːm]	尘暴
snowstorm	[ˈsnəʊstɔːm]	雪暴
shower	[ˈʃauə]	阵雨 Snow Shower 阵雪
frontal	[ˈfrʌntl]	锋面的 frontal precipitation 锋面降水
squall	[skwɔː]	飑 squall line 飑线
hail	[heil]	雹；hailstone 冰雹；hailstorm 雹暴
lightning	[ˈlaitniŋ]	闪电
tornado	[tɔːˈneidəu]	龙卷风
isolated	[aisəleitid]	孤立的 isolated thunderstorm 局部雷暴
embedded	[emˈbedid]	嵌入的 embedded cumulonimbus 内嵌积雨云
typhoon	[taiˈfuːn]	台风
downdraught	[ˈdaundrɑːft]	下沉气流
hurricane	[ˈhʌrikən]	飓风
winds aloft		高空风
strong wind		强风
microburst	[ˈmaikrəbəːst]	A sudden, violent downdraft of air over a small area 微爆；微爆流

downburst	[ˈdaunbəːst]	A strong downdraft which induces an outburst of damaging winds on or near the ground 下爆气流
mountain wave		山地波
cell	[sel]	单元 thunderstorm cell 雷暴单体
jet stream		A high-speed high-altitude air stream blowing from west to east near the top of the troposphere 高空急流
cumulonimbus	[ˈkjuːmjuləuˈnimbəs]	积雨云
drizzle	[ˈdrizl]	细雨；毛毛雨
freezing rain		冻雨
icing	[ˈaisiŋ]	结冰 anti-icing 防冰；de-icing 除冰；rime ice 毛冰；clear ice 明冰
frost	[frɔst]	霜
intermittent	[ˌintə(ː)ˈmitənt]	间歇的
cyclone	[ˈsaikləun]	气旋 anticyclone 反气旋
clear air turbulence		晴空颠簸
sleet	[sliːt]	雨夹雪
volcanic	[vɔlˈkænik]	火山的 volcanic ash 火山灰
eruption	[iˈrʌpʃən]	爆发 volcano eruption 火山爆发
earthquake	[ˈəːθkweik]	地震
tremor	[ˈtremə]	颤动 earth tremor 地颤
tsunami	[tsjuːˈnɑːmi]	海啸
smoke	[sməuk]	烟
burn	[bəːn]	烧；烧伤
choke	[tʃəuk]	窒息
extinguish	[iksˈtiŋgwiʃ]	熄火
crash landing		紧急迫降
forced landing		迫降

belly landing		机腹着陆
ditch	[ditʃ]	水上迫降
bulkhead	['bʌlkhed]	隔板
empennage	['empənidʒ]	尾部；尾翼
skin	[skin]	蒙皮
spar	[spɑ:]	翼梁
spoiler	['spɔilə]	扰流板
tail fin		垂直尾翼
airbrake	['ɛəbreik]	减速板
slat	[slæt]	缝翼
flap	[flæp]	襟翼
trim tab		配平片
cowling	['kauliŋ]	（发动机）整流罩
pylon	['pailən]	（发动机）吊架
nacelle	[nə'sel]	发动机舱；短舱
shutdown	['ʃʌtdaun]	关闭
		engine shutdown 关车
flameout	['fleɪmaʊt]	（喷气发动机）燃烧中断；熄火
airstart	['ɛəstɑ:t]	空中启动
detach	[di'tætʃ]	分离
disintegrate	[dis'intigreit]	解体
bleed	[bli:d]	引气
burnout	[bɜ:naʊt]	燃尽；烧光
reserved	[ri'zə:vd]	预留的；保留的
		altitude reservation 预留高度
		airspace reservation 预留空域
military activities		军航活动
air corridor		空中走廊
danger area		危险区
restricted area		限制区
prohibited area		禁区
non-transgression zone		禁止跨越区

Ⅲ. Diagram Study

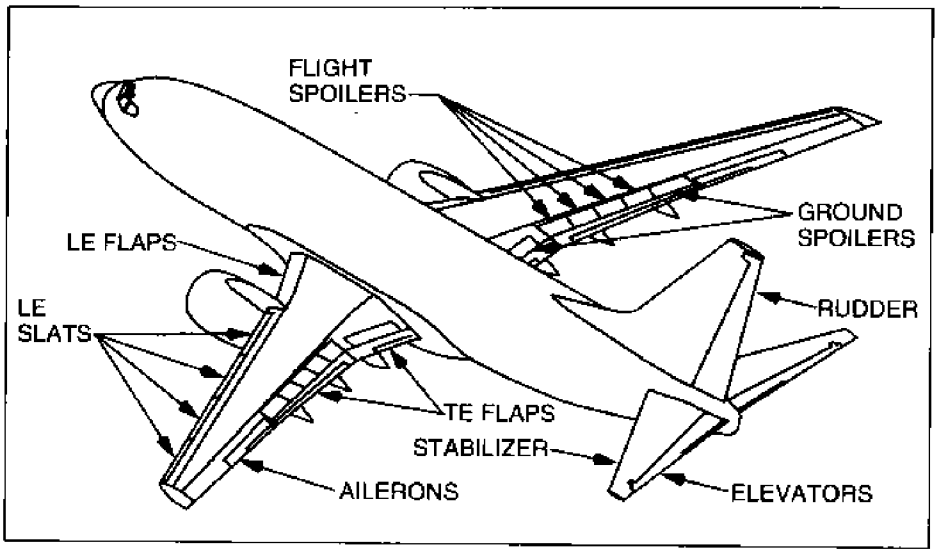

Figure 7.1 A Typical Airplane Control surfaces and devices

Section 2 Supplementary Reading

Passage 1 Speed Control Phraseology

Early morning departure from a major UK airport. Turn made at VST VOR speed 193 knots at flap "one" cleaning up passing 3000 feet climbing to 4000 feet.

Handed over to Area Control. Told to "KEEP THE SPEED climb 4000 feet" Crew confused by this! Normally expect to accelerate to 250 knots unless released from speed control.

But did ATC mean do not expect to be released from control maintain 250 knots? Or did ATC mean maintain current speed of 193 knots? Or did I mishear no speed control?

I called at 4000 feet to clarify. In fact, the ATC meaning was maintain 250 knots. The call "keep the speed" from ATC was unnecessary because 250 knots is what we expected to do anyway. It caused confusion at a time of high workload for both aircrew and ATC and led to another RT call on a busy frequency.

I think I repeated back "no speed control" because that seemed to make the most sense.

This was not picked up by ATC and, if we had not clarified the situation, would have done the opposite to ATC's intention!

Discussion question: Why is the instruction "keep the speed" unnecessary?

Words and Expressions

cleaning up		正在收起襟翼
clarify	['klærifai]	To clear of confusion or uncertainty 澄清
pick up		To come upon and observe 发现

Passage 2 Call Sign Confusion and Level Busts

On the matter of callsign confusion (which obviously can cause level-busts), why do we not still use the old tried and tested method of dealing with this? I remember that when Trip Numbers started to be used as callsigns, if we had two similar trip numbers on frequency together, we just asked one crew to use their aircraft registration as a callsign for the rest of the flight, or at least for the rest of their time on the same sectors. It worked a treat. It was, of course, easier back then to just amend the paper strips, but I think even our modern electronic processing of strips will allow this change to be made relatively easily.

On another cause of level busts, why does the international community not do something to deal with the American misuse of the word "Maintain"? In every other country, I believe, "Maintain" is used to mean "stay at the level you are at." It never means climb, or descend. Americans however use "Maintain" to mean "climb, or descend to the level mentioned and then maintain it." This is an incorrect use of the word "Maintain" and a definite source of level-busts. Can ICAO not issue an instruction to all States, that crews must not change level without the specific instruction to climb, or descend?

If, as does happen, a crew receives a "Maintain" instruction from a controller that contains a level which is not their current level, they must query the instruction, as all non-US crews naturally do.

Discussion question: what is the author suggesting?

Words and Expressions

trip number		航班号
aircraft registration		飞机注册号
treat	[tri:t]	A source of a special delight or pleasure 乐事

Chapter 8 Descent

Section 1 Dialogues

1. Pressurization Problem

(1) PIL Queenston Control, Fastjet 939, ready to descend.

CTL Roger, Fastjet 939, descend to FL190 at 2500 feet per minute.

PIL Leaving FL310, descending to FL190, 2500 feet per minute, Fastjet 939.

(A while later)

PIL Fastjet 939, we're having problems with the pressurization, we'll have to descend slowly.

CTL Roger, Fastjet 939. Recleared to FL170, report reaching, no delay expected.

PIL Descending to FL170, Fastjet 939.

2. Bomb Scare

(1) PIL Control, Fastjet 335. Our company has just told us that we might have a bomb on board, request descend immediately to 3000 meters.

CTL Fastjet 335, Turn right 30° to offset the route by 20 km, and then descend to 3000 meters QNH 1009.

PIL Right 30°, 20 km, and then descend to 3000 meters on 1009, Fastjet 335.

(A while later)

PIL Fastjet 335, reaching 3000 meters. Shall we get back on track?

CTL Negative, Fastjet 335. For security reasons, you'll have to divert to Kingston for landing.

PIL That is OK. Request clearance to Kingston. Fastjet 335.

CTL Fastjet 335, maintain 3000 meters; turn left direct to CIH VOR.

PIL Maintain 3000 meters; left turn direct to CIH VOR; Fastjet 335.

CTL Fastjet 335, contact Kingston tower on 120.9.

PIL Kingstong tower; 120.9; Fastjet 335.

(A while later)

PIL Kingstong tower, Fastjet 335. Maintaining 3000 meters; Banksville in one minute.

CTL Fastjet 335, Kingstong tower, roger. Expect visual approach runway 11; wind 140° 6 m/s; CAVOK; temperature 27; QNH 1010.

PIL QNH 1010, roger. Fastjet 335.

CTL Fastjet 335, descend to 1800 meters. After Banksville, follow Jasmine 2 arrival.

PIL After CIH, follow Jasmine 2 arrival; cleared to 1200 meters. Fastjet 335.

(A while later)

PIL Fastjet 335, passing Banksville, leaving 3000 meters, descending to 1200 meters.

CTL Roger, Fastjet 335. Report field in sight. Be advised emergency vehicles are standing by on the taxiway.

PIL Fastjet 335, roger.

(A while later)

PIL Fastjet 335, runway in sight.

CTL Fastjet 335, cleared visual approach runway 11. Report on final.

PIL Cleared visual approach runway 11, Fastjet 335.

(A while later)

PIL Fastjet 335, final.

CTL Fastjet 335, wind 140° 6 m/s gusting 10, cleared to land.

PIL Cleared to land, Fastjet 335.

(A while later)

CTL Fastjet 335, take the first right; watch for the follow-me car on right-hand side of the taxiway.

PIL First right, Fastjet 335.

CTL Fastjet 335, switch to 121.5 for contact with the bomb disposal squad.

PIL Twenty-one Five, Fastjet 335.

3. Fire in the Hold

(1) PIL Approach, Fastjet 991. We got a fire warning in the cargo hold. Request immediate descent and landing priority.

CTL Fastjet 991, roger. Descend initially to 5000 feet QNH 1007. I'll call you back for further descent.

PIL Fastjet 991, descending to 5000 on 1007. We are beginning to have smoke in the cabin.

CTL Fastjet 991, roger. Fly heading 220. I'll take you to the runway threshold direct. Is that OK?

PIL That's fine. We might evacuate on the runway after landing, please advise the rescue service.

CTL Fastjet 991, fire trucks are coming out for you. They want to know if you have any dangerous goods onboard.

PIL Affirm. We've got some kind of chemicals in the hold.

CTL Fastjet 991, Roger, chemicals. We also need your number of persons on board and fuel on board.

PIL We have 212 passengers and 8 crewmembers, and 14 thousand pounds of fuel.

CTL 212 plus 8 and 14 thousand pounds. OK. Fastjet 991, you are cleared to land. Advise anytime you have the runway in sight.

PIL Cleared to land, Fastjet 991.

4. Communication Problem

(1) PIL Fastjet 779, transmitting blind due to receiver failure. Fastjet 779, FL290; heading 110; over Roseville VOR this time; descending to be at FL100 over BSV intersection; standard arrival procedure next for landing runway 32 at Queenston.

(2) CTL Fastjet 807, I say again, Fastjet 807, do you read?

PIL Approach, Fastjet 807. Reading you five.

CTL Fastjet 807, did you read my previous transmissions?

PIL Negative, sir. Princeton has just put us over to you.

CTL Fastjet 807, that's OK. Your present heading please?

PIL Heading 255, Fastjet 807.

CTL Fastjet 807, make it 270.

PIL Heading 270, Fastjet 807.

5. Epidemic Suspicion

(1) PIL Queenston control, Fastjet 801. We have a seriously ill passenger onboard. Request priority landing and medical service on landing.

CTL Roger, Fastjet 801. Proceed direct to Banksville; Report when ready for descent.

PIL Direct to Banksville, Fastjet 801.

CTL Fastjet 801. The doctors want to know more about his or her illness. Can you describe the symptoms?

PIL Standby, I'll call you back. Fastjet 801.

(A while later)

PIL Queenston control, Fastjet 801. He has difficulties in breathing and a high fever.

CTL Roger, thanks. The doctors suspect it to be a SARS case since there is an outbreak of the epidemic at your departure point. You'd better take some precautions.

PIL What precautions do they recommend?

CTL Fastjet 801. Try your best to isolate him from other passengers, and wear masks and gloves when handling him.

PIL OK. We are ready to descent now. Fastjet 801.

CTL Fastjet 801, cleared down to FL110; Report reaching.

6. Unfamiliar Approach Procedure

(1) CTL Fastjet 005, cleared to Banksville via Jasmine 2 arrival; expect DME arc approach to runway 16.

PIL Cleared to Banksville via Jasmine 2 arrival; uh, we are not familiar with DME arc procedure. Request detailed instructions. Fastjet 005.

CTL Fastjet 005, on reaching Banksville, follow 10 miles BSV DME arc until 105 degree radial, then turn left to intercept 100 degree radial of BSV VOR.

PIL Fastjet 005, copied that, thank you. We are not standing by for descent.

CTL Fastjet 005, descend and maintain 2400 meters.

7. Traffic Conflicts

(1) CTL Fastjet 548, Proceed to Roseville; descend to 6000 meters.

PIL Fastjet 548, unable to comply due TCAS resolution advisory. There's opposite traffic coming up to 6000 meters.

CTL Fastjet 548, maintain 6300 meters. I told him to climb to 5700 meters. He must have busted the level.

(2) CTL Fastjet 461, turn right heading 020° for traffic. Unidentified traffic: 11 o'clock; 7 miles; height unknown. You'll pass behind him on that heading.

PIL Roger, Fastjet 461. We've got him in sight; looks like a reconnaissance

plane; well above us.

CTL Fastjet 461, if you're happy to avoid him visually, you may stay on your present heading. You're Number 1 to land.

(3) PIL Fastjet 548, TCAS descent, I say again, TCAS descent.

CTL Roger, TCAS descent, Fastjet 548, watch out for further traffic at 3900 meters.

(A while later)

PIL Fastjet 548 is now at 4200 meters, clear of traffic. Shall we return to 4500 meters?

CTL Negative, Fastjet 548. Maintain 4200 meters; expect further descent shortly.

PIL Maintaining 4200 meters, Fastjet 548.

CTL Fastjet 548, what was the closest distance?

PIL It was not so close horizontally, but we were on converging tracks. I'll give you a complete report after landing.

(4) CTL Fastjet 871, avoiding action, turn right immediately heading 340. Traffic at 2 o'clock, 10 kilometers, crossing right to left, slightly above.

PIL Turning left heading 340, Fastjet 871.

8. Engine Failure

(1) PIL Fastjet 298, we've had precautionary shutdown on Number 2 engine.

CTL Roger, Fastjet 298. Do you need any special handling?

PIL Negative, Fastjet 298.

(A while later)

PIL Kingston Control, Fastjet 298. We have some rather serious indications of oil pressures on all three engines, down to zero. We believe it to be faulty indications since the chances of all three engines having zero oil pressure and zero quantity is almost nil. However, that is what is indicated on the instruments.

CTL Fastjet 298, if you wish, turn right heading 040, I'll vector you direct to Kingston. Maintain 6000 meters, or whatever you like. I'll get the emergency equipment standing by for you anyway.

PIL Right heading 040, direct to Kinston, roger.

CTL Fastjet 298, how many persons do you have on board?

PIL 198.

CTL 198, roger. Does that include your crew?

PIL Negative. We've got 3 in the cockpit and 7 in the cabin.

CTL Fastjet 298, cleared down to 3600 meters, descend at your discretion.

PIL Control, Fastjet 298. We've lost our Number 2 engine now.

CTL You still got 2 engines turning?

PIL Negative, We have only one now. We'll try to restart our Number 2.

CTL Roger, Fastjet 298. You can proceed direct to Kingston. You're clear of traffic, descend at your discretion.

PIL Heading to Kingston, Fastjet 298.

CTL Fastjet 298, you can plan a straight-in approach to runway 05.

PIL runway 05, Okay.

CTL Fastjet 298, if you are not busy, I need the reading of your fuel on board.

PIL We have 24 thousand pounds of fuel.

CTL Roger, Fastjet 298. You're about 25 kilometers out.

PIL We're losing another engine. We've just lost our third engine.

CTL Roger, have you got the other one started?

PIL Negative, we have no engines running.

CTL Roger, Fastjet 298. You're 20 kilometers southwest of Kingston. Keep me advised of your intentions.

(A while later)

PIL Kingston control, Fastjet 298. We have one engine turning now. We believe we can make it to the airport.

CTL Roger, Fastjet 298. The airport is at your 12 o'clock, 6 kilometers. Let me know when you have the runway in sight.

PIL Runway in sight. We believe we can make it.

CTL Great! You're cleared to land runway 05. Have a good one!

(2) PIL Kingston control, Fastjet 381. We have an emergency. We got a double engine flameout.

CTL Fastjet 381, confirm you have a double engine-out?

PIL Affirm.

CTL Fastjet 381, are you able to maintain your altitude at all?

PIL Negative. We have no engines. Where would you like us to head, sir?

CTL There's Orchidville 110 kilometers to your left front. But I am not sure the runway is long enough for you.

PIL We'll take Orchidville. Give us a heading for it.

CTL Heading 310.

PIL 310, roger. We are trying to get one engine started.

CTL Fastjet 381, you are 100 kilometers from Orchidville. It's a 2200 meter runway on heading 340.

PIL We've got the engines stared now. We are leveling off at 4800 meters. We might as well continue to a larger airport.

CTL Fastjet 381, understand your engines are restarted now. Just maintain your altitude. We can either give Princeton or take you over to Kingston. That might be your best bet.

PIL I think Princeton would probably be the best choice. Standby, I'll talk to our company.

(3) PIL Fastjet 245, request lower immediately.

CTL Fastjet 245, descend to 6000 meters.

PIL descending to 6000 meteres. Fastjet 245, declare an emergency, we have shutdown one engine, single engine now, request priority handling.

CTL Fastjet 245, roger emergency. Are you able to maintain altitude?

PIL We are now drifting down to 6000 meters. We believe we can maintain an altitude below 6000.

CTL Fastjet 245, you may maintain any altitude you like.

PIL Roger. Fastjet 245.

(A while later)

CTL Fastjet 245, the wind is now 240 degrees 3 m/s, we're using runway 25. Would you prefer 07 for landing?

PIL Affirm. We'd prefer runway 07. Thanks a lot.

CTL OK, Fastjet 245. Cleared direct to VNE, Expect runway 07.

9. Miscellaneous Vectoring Instructions

(1) CTL Fastjet 228, make a right turn; the long way round, to roll out heading 320°, delaying action.

PIL Roger, Fastjet 228 is turning RIGHT to heading 320.

CTL Fastjet 228, continue descent to 2100 meters, expedite until passing 2700 meters.

PIL Continue down to 2100, expedite through 2700. Fastjet 228.

CTL Fastjet 984, descend and maintain 1500 meters; expect lower in 20 kilometers.

PIL Out of 2100 meters for 1500 meters, Fastjet 984.

(2) CTL Fastjet 582, you have 20 miles to run to touchdown. Can you lose altitude in time for a straight-in approach runway 22?

PIL Affirm, Fastjet 582. Request approach clearance.

(3) PIL Approach, Fastjet 437. Any chance landing north today for 34?

CTL Fastjet 437, Affirm, descent to 1500 meters on QNH 1010, continue present heading, expect radar vectoring to ILS runway 34.

PIL Descending to 1500 on 1010, Fastjet 437. Can we turn right 20 degrees for weather avoidance?

CTL Fastjet 437, Affirm, call me when you are clear of weather.

(4) CTL Fastjet 3298, you're a bit close to the aircraft ahead, continue heading 330°. I'll take you through the localizer and after this slight delaying action, you'll be closing the localizer from the right.

PIL Fastjet 3298 is doing one eighty. Would it help if we reduced to one fifty?

CTL Negative, Fastjet 3298. There is further traffic behind you.

Words and Expressions

pressurization	[ˌpreʃəraiˈzeiʃən]	增压
bomb disposal squad	[bɔm disˈpəuzəl skwɔd]	A group of soldiers or police officers specially trained in bomb disposal 负责拆除炸弹的专门人员
SARS		Severe Acute Respiratory Syndrome 俗称非典型肺炎，简称非典
outbreak	[ˈautbreik]	A sudden increase（疾病的）暴发
epidemic	[ˌepiˈdemik]	A widespread outbreak of an infectious disease; many people are infected at the same time 流行病
precaution	[prɪˈkɔːʃəs]	An action taken in advance to protect against possible danger, failure, or injury; a safeguard 预防措施
isolate	[ˈaisəleit]	To set apart or cut off from others 隔离
reconnaissance	[rɪˈkɔnisəns]	An inspection or exploration of an area, especially one made to gather military information 侦查；预警
roll out		改出航向
TCAS resolution advisory		TACS 避让提示

nil	[nɪl]	Nothing; zero 没有；零

Exercises

Ⅰ. Translation

1. 我们座舱增压有问题，必须慢慢下高度。
2. 出于安全原因，你必须改航到绿城落地。
3. 落地后我们可能在跑道上疏散。
4. 货舱出现了火警，请求立即下降，优先着陆。
5. 消防员们需要知道你飞机上是否有危险品。
6. 你的出发地爆发霍乱，检疫部门要求你不要让旅客下飞机。
7. 我不熟悉这里的后航道进近程序，请求详细指令。
8. 我跟他讲下 5400，它可能搞错了。
9. 我看见了，好像是个战斗机，高度比我高得多。
10. 我认为这是一次严重的事件，着陆后会给你提交一份完整的报告。

Ⅱ. Word Study

cholera	['kɔlərə]	霍乱
typhoid	['taifɔid]	伤寒
dengue	['deŋgei]	登革热
malaria	[mə'lɛəriə]	疟疾
flu	[flu:]	流感
		bird flu 禽流感
anthrax	['ænθræks]	炭疽
circuit breaker		断路开关
		popped circuit breaker 跳开关
APU		Auxiliary Power Unit 辅助动力装置
fuse	[fju:z]	保险丝；熔丝
short circuit		短路
battery	['bætəri]	电池；电瓶
bus bar		汇流条
generator	['dʒenəreitə]	发电机
pack	[pæk]	组件
		AC pack 空调组件
warning	['wɔ:niŋ]	警告

alarm	[ə'lɑːm]	警报
mandatory/compulsory		强制的
non-compulsory/on-request		非强制性的
circumnavigate	[ˌsəːkəm'nævigeit]	绕航
deviate	['diːvieit]	偏航；偏离；背离
detour	['diːtuə(r)]	绕行
drift	[drift]	偏流；偏离；漂移
driftdown	[drift'daun]	飘降
radial	['reidjəl]	（VOR 的）径向线
bearing	['bɛəriŋ]	方位；（NDB 的）方位线
azimuth	['æziməθ]	方位；方位角
course	[kɔːs]	The intended direction of flight in the horizontal plane measured in degrees from north 航道
fix	[fiks]	A geographical position determined by visual reference to the surface, by reference to one or more radio navigational aids, by celestial plotting, or by another navigational device 定位点
NAVAID	['neiveid]	Short for navigational aid 导航台（简语）
DME arc approach		DME 弧进近
circle-to-land		盘旋进近
back course approach		后航道进近
IGS approach		仪表引导系统进近
precision radar approach		精密雷达进近
talk-down		地面引导进近
localizer approach		航向道进近
inbound	['inbaund]	进港的；向台的
outbound	['autbaund]	出港的；背台的
for positioning on base		为了引导到四边
for base		为了飞四边
for spacing		为了间隔
for delaying action		为了延迟

III. Diagram Study

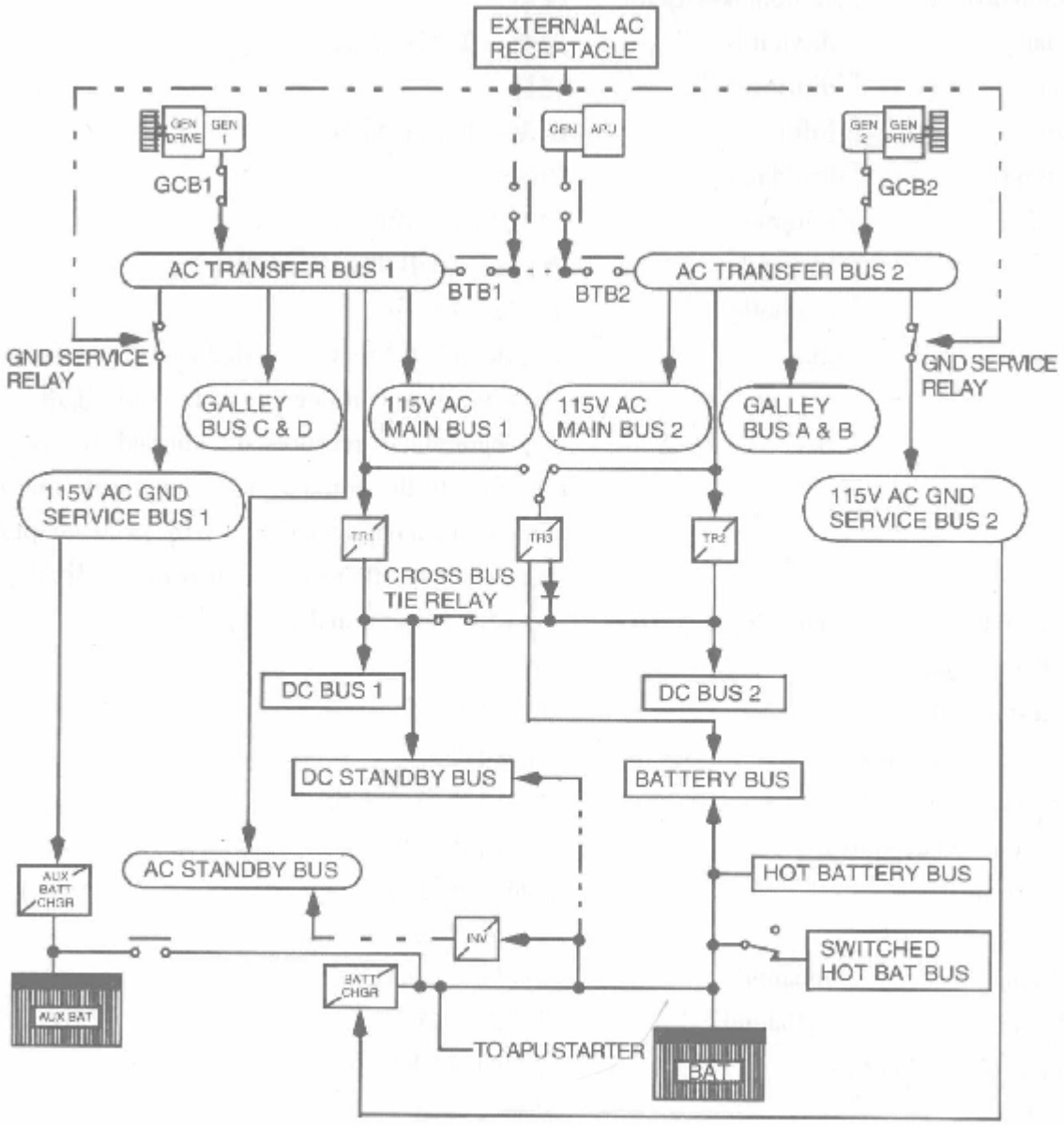

Figure 8. 1 A typical Airplane Electrical System

Section 2 Supplementary Reading

Passage 1 The Wrong Assumption

Our flight to an airport on Ionian Island proceeded as expected until we were handed from the Area controller to the Approach. The crew briefed for a VOR approach, in accordance with the prevailing winds and CAVOK conditions. We were instructed to proceed to the VOR and maintain 9000 feet and complied. The procedure requires a beacon outbound altitude of 8000 feet, descending once established outbound to 3000 feet by a distance of 12 miles, before the procedure turn.

Our first request was to make a visual approach as we had field in sight 14 miles from the airport, though this request was denied due to departing traffic. We maintained a visual contact with this conflicting traffic though once reaching the VOR our request for descent was denied as the controller had not yet made contact with the departing traffic. We advised that we were beacon outbound for the VOR approach and that the departing aircraft was to the North and we were now 4 miles to the South. Descent clearance was denied several times until we had 20 miles of separation. Now very high for the procedure but judged that a safe approach was still possible. ATC cleared us to 3000 feet at 12 miles and at this time we commenced our procedure turn. It was at this point we received a TCAS alert from two aircraft, both maintaining 7000 feet and on reciprocal headings. On command from the Resolution Advisory we climbed clear of conflict, returned and maintained 8000 feet back to the VOR. Once at the beacon we were cleared for the approach and landed shortly afterward.

After conversations with the controller, we had discovered that the controller had thought we were taking up the hold and therefore gave us no warnings of the military traffic transiting the TMA. We were given no instructions to take up the hold and made numerous calls stating our position on the VOR radial as part of the initial approach.

The controller was concerned with a potential conflict between the departing traffic and ourselves, though being 8000 feet above and proceeding in opposite directions, there was no conflict. I remain unclear why it was assumed that we were in the holding pattern. TCAS proved its worth once again.

Discussion question: Why do you think the controller assumed that they were in a holding pattern?

Words and Expressions

assumption	[əˈsʌmpʃən]	Something taken for granted or accepted as true without proof 假定；假设
Ionian	[aiˈəunjən]	爱奥尼亚岛
brief	[briːf]	To give concise preparatory instructions, information, or advice to 准备；讲解 debrief 讲评
prevailing wind		盛行风
deny	[diˈnai]	Refuse 拒绝
commence	[kəˈmens]	To begin 开始
CAVOK	[kɑːvˈəukeɪ]	Pronounced CAV-okay (ceiling and visibility OK), visibility at least ten kilometers, with no cloud below 5000 feet, with no CBs, precipitation, thunderstorms, shallow fog or low drifting snow 云高和能见度良好
reciprocal	[riˈsiprəkəl]	Bearing in a direction 180° to a given direction 逆向

Passage 2 Autopilot "Gotcha"

After a continuous series of 1000 foot descents FL70 > 60 > 5000 feet, we didn't notice the autopilot had not captured 5000 feet. We descended to 4650 feet before recovering our assigned altitude of 5000 feet. ASR filed by the Captain and ATC.

This type of plane has a unique autopilot (so I'm told!) in as far as the ALT CAPTURE function requires an input of the assigned level and also a push of the "ALT SEL" button. During a descent in VS mode (e. g. 1000 fpm), the autopilot will happily descend through the level dialed in unless the ALT SEL mode has also been manually armed. In the last 1000 feet, any adjustments to the vertical speed or pitch modes can cause the ALT SEL to disarm, with results as described above.

A continuous series of 1000 feet descents with this system leads to a lot of button pushing

to set the correct modes to continue the descent without leveling off. At the last stage, after setting QNH, neither pilot noticed that ALT SEL had not armed. Perhaps I double pushed ALT SEL (it was a little bumpy up there), perhaps I didn't push it at all. Either way, PNF was distracted by starting the approach checks. I called for these too soon really. We had plenty of time to carry these out after the level-off at 5000 feet. As PF, I accept responsibility for the incident. The moral of the story is with 1000 feet to go, don't do anything except fly the aircraft! In a series of 1000 feet descents with the last minute clearance for a further 1000 feet descent I was continually in the "1000 feet to go" regime and my inexperience led me to call for the approach checks at a time when my priorities should have been elsewhere.

Lesson learned!

Thanks to the ATC Unit for attracting our attention to the deviation I can't help wondering when we would have noticed the continued uncleared descent into busy TMA airspace.

A number of Automatic Flight Guidance Systems introduced in the 1970s/80s had similar design features, although the version of the twin turboprop featured in this report was certificated more recently.

The type of crew error described in this report was identified by the Level Bust Working Group as the cause of a significant number of level bust incidents in the UK. The Group recommended that AFGSs with this feature be modified, however, this was not possible.

This AFGS design feature renders crews vulnerable to errors similar to that reported, particularly when performing a sequence of step-down descents in a busy Terminal Control Area environment. Thus, it is particularly important to monitor closely the aircraft's actual flight path in relation to that intended.

Discussion question: What was the cause of the level bust?

Words and Expressions

gotcha	['gɔtʃə]	got you
capture	['kæptʃə]	截获
ASR		Air Safety Report 航空安全报告
dial	['daiəl]	1) To point to, indicate, or register by means of a dial 拨号 2) A graduated surface or face on which a measurement, such as speed, is indicated by a moving needle or pointer 标度盘

arm	[ɑ:m]	To prepare (a weapon) for use or operation, as by releasing a safety device 打开（保险）
bumpy	['bʌmpi]	颠簸的
PNF		Pilot not flying 非操作驾驶员
PF		Pilot flying 操作驾驶员
moral	['mɔrəl]	The lesson or principle contained in or taught by a fable, a story, or an event 寓意
regime	[reɪ'ʒi:m]	The period during which a particular administration or system prevails 统治期
render	['rendə]	To cause to become; make 使……
vulnerable	['vʌlnərəb(ə)l]	易于……的

Chapter 9 Approach

Section 1 Dialogues

1. Bird Activity

(1) PIL Approach, Fastjet 993. Maintaining FL 90; with you.

CTL Fastjet 993, identified; information now J; descend to 3000 feet; QNH 1015.

PIL Descending to 3000 feet; 1015; Fastjet 993.

CTL Fastjet 993, previous aircraft reported extensive bird activities at around 5000 feet.

(2) PIL There are huge flocks of birds in the vicinity of the airport. I ran into a big flock on final.

CTL Have you sustained any damage?

PIL Everything seems to be normal so far.

CTL We've had similar reports in the last few days. There have been lots of birds both on the taxiways and on approach.

2. Speed Adjustment

(1) CTL F-XH, you're nine miles from touchdown, say speed.

PIL F-XH, 120 knots.

CTL F-XH, can you keep up your speed to the outer marker?

PIL F-XH, will fly at 120 knots to the outer marker.

CTL Thank you F-XH. Break, Break. Fastjet 475, you are 12 miles behind a slow aircraft. If you could start reducing speed now to 170 knots, it will save me asking you for a bigger speed reduction later on.

PIL Fastjet 475 is coming back to 170 knots. We can make it slower if you wish.

CTL Negative. Speed 170 knots to the outer marker.

PIL Wilco, Fastjet 475.

(2) CTL Fastjet 4201, turn left heading 310°. You are closing the localizer from the

left; report established.

PIL 4201, left 310. What's my distance from touchdown?

CTL 4201, 12 miles from touchdown. Does that check?

PIL Affirm, my DME indicates just less than twelve miles. 4201.

CTL Fastjet 4201, maintain 170 knots till advised.

PIL 170 knots; Fastjet 4201.

(3) CTL Fastjet 3957. Could you reduce to 140 knots?

PIL Negative, our minimum approach speed is 150.

CTL Fastjet 3957, reduce to 150 then. Should be sufficient to avoid running into the wake vortex of the jet ahead of you.

(4) CTL Fastjet 885, you are 12 miles from touchdown; number 2 to land; ten miles behind Number 1; can you increase speed for a short while?

PIL Fastjet 885, what speed would you like?

CTL Fastjet 885, can you give me 200 knots till the outer marker?

PIL Fastjet 885, we'll do our best.

(5) CTL Fastjet 277, you're Number 3; 18 km behind a Tupolev 154; keep up your speed.

PIL Fastjet 227 will keep up speed.

(A while later)

PIL Can I slow down to 190 knots on account of the chop?

CTL Fastjet 227, that's OK.

3. Technical Problems

(1) PIL Fastjet 553, Queenston Tower. Our left main landing gear is jammed.

CTL Fastjet 553, what are your intentions?

PIL Request proceed to holding area in order to carry out a complete check.

CTL Roger, climb to 2000 ft and turn left heading 350 to Roseville VOR.

PIL Climbing to 2000 ft; turning left heading 350 to Roseville; Fastjet 553.

(A while later)

PIL Fastjet 553, over Roseville 2000 ft. We have a gear-down indication now, but we not are sure if it's properly locked. We intend to make a low pass near the Tower to have the undercarriage checked.

CTL Roger, Fastjet 553. Make a low pass at 200 ft heading 070; north of Tower.

PIL At 200 ft; heading 07; North of Tower; Fastjet 553.

(A while later)

CTL Fastjet 553, your landing gear appears to be completely extended.

PIL OK. We intend to burn off some 20 tons of fuel before landing.

CTL Fastjet 553, maintain 3000 feet; hold between 20 and 30 mile on radial 230 Lilyville VORTAC; report when you are ready for landing.

(2) PIL Fastjet 572, unable to extend flaps beyond 20°. Request a high speed flat approach to runway 21, which is the longest available.

CTL Roger, Fastjet 572. Proceed to holding pattern over Roseville VOR while we sort out the traffic. I'll call you back when ready.

PIL Thank you Queenston. Request emergency services for landing. Fastjet 572.

(3) PIL Approach, Fastjet 284. We got a gear problem. We'll let you know.

CTL Fastjet 284, Roger. Turn left heading 100 and I'll just orbit you out there till you get your problem solved.

(A while later)

PIL Approach, Fastjet 284. We have indication our gear is abnormal. It'll be our intention to land on 18L in about five minutes. We would like the equipment standing by. We got our people prepared for an evacuation in the event that should become necessary.

CTL Okay, Fastjet 284. Advise when you'd like to begin your approach.

PIL They are almost ready in the cabin. We'll attempt an emergency landing in about 10 minutes.

CTL Fastjet 284. If you could, give me souls on board and amount of fuel.

PIL 172 passengers plus six infants, and about 6000 pounds··· well, make it 5000 pounds of fuel.

CTL That's copied. Fastjet 284.

PIL Please advise our maintenance we'd like the mechanics to check the plane after we stop... before we taxi to the gate.

CTL Fastjet 284, your mechanics will be meeting you as soon as you stop.

(A while later)

PIL Fastjet 284 would like clearance for an approach into 18L now.

CTL Fastjet 284, Leave Lilyville heading 080. I'll vector you for a 10 mile final ILS approach runway 18L.

PIL Fastjet 284 is going to turn toward the airport and come on in.

CTL Fastjet 284, do you want to do it on a visual?

PIL Affirm.

CTL Okay, Fastjet 284. Turn left heading 040, and verify you have the field in sight?

PIL We do have the field in sight. Fastjet 284.

CTL Fastjet 284 is cleared visual approach runway 18L.

PIL Cleared visual, 18L. How far do you show us from the field?

CTL I'd call it 14 flying miles.

4. Holding for Weather Improvement

(1) CTL Fastjet 442, current RVR is 240 meters; CAT II landings are in operation. Suggest you divert to alternate.

PIL Fastjet 442, we'd like to hold for weather improvements though we don't have a CAT II rating.

CTL Fastjet 442, that would be OK with us. But according to the latest trend report, the RVR is not likely to improve until after 0600 UTC.

PIL We know that, but we've got enough fuel to hold for one hour and then divert to Princeton. Besides, the weather at Princeton is good and stable. So for the moment we wish to wait and see.

CTL Fastjet 442, proceed to Roseville and hold as published. Which level would you like to maintain in the holding pattern?

PIL 4500 meters, Fastjet 442.

CTL Fastjet 442, descend to and maintain 4500 meter; report reaching Roseville.

5. Pavement Strength

(1) CTL Fastjet 832. Runway 23 L is closed at the moment, but you may use 17L.

PIL May I have the bearing strength of 17L?

CTL Fastjet 832, Standby. Bearing strength is 50 tons for twin-wheel gear.

PIL That's fine. Request landing instructions for 17L. Fastjet 832.

(2) CTL Fastjet 8732, continue present heading; advise me when you have runway in sight.

PIL Fastjet 8732, Wilco. Give me your runway PCN please.

CTL Fastjet 8732, stand by one please.

(A while later)

CTL Fastjet 8732, runway 22 PCN: ACN 80; rigid pavement; medium subgrade resistance; no tire pressure limit; technical evaluation.

PIL Fastjet 8732, copied. Thanks.

(3) CTL F-AN, A Piper has nosed over on the runway. Can you use the grass strip?

PIL F-AN, negative. I'm afraid we would get bogged down. We'd better divert to our alternate.

6. VFR minimums

(1) PIL Fastjet 284, request straight-in approach.

CTL Fastjet 284, the weather is below VFR minimums due a fog bank obscuring the north end of the field.

PIL Fastjet 284, we can see the field clearly and can make the runway with no trouble at all. May I have landing instructions?

CTL Yes, you may, Fastjet 284. But as it's illegal for you to land, I'll have to write up an incident report and it might end up with a license suspension.

PIL In that case, we'll divert to Princeton. Fastjet 284.

(2) CTL V-PN. I'm Sorry, but you landed 45 minute after sunset.

PIL I'm instrument-rated, V-PN.

CTL Then you ought to have changed your flight plan from VFR to IFR.

7. Arrival Delay

(1) CTL Hold at Roseville; standard pattern; expect approach in 30 minutes, due to VVIP flights.

(2) CTL Hold on PLD VOR radial 240 between 30 and 40 miles; right hand patterns; expect approach Time 23. We had an emergency this morning. The runway had to be foamed and it's being cleaned up at the moment. Should be re-opened shortly.

(3) CTL Expect a proble hold at Roseville. you can reduce to holding speed now.

8. ATC Advisory

(1) CTL My radar shows you going left of track. Can you make the landing alright?

(2) CTL Fastjet 028, low altitude warning; check your altitude immediately; QNH is 1010; the minimum flight altitude is 1800 meters.

9. Noise Abatement

(1) PIL Fastjet 496 has the field in sight.

CTL Roger, 496. Cleared visual approach. Keep clear of built-up areas.

PIL Fastjet 496 will do that. And what number am I in traffic?

CTL Fastjet 496, you've just become Number 1, continue approach, contact Tower on 124. 15.

PIL 124. 15; Fastjet 496; Good morning!

10. Runway Surface Conditions

(1) PIL Approach, Fastjet 391 is fully established on the localizer.

CTL Roger, Fastjet 391. Descend on the glide path; Number 2 behind a 737; 4 miles ahead.

PIL What's the runway condition?

CTL The braking action is poor. Some ice has been reported by previous landing aircraft at the far end of the runway.

(2) PIL Fastjet 812 is at the outer marker.

CTL Fastjet 812 is cleared to land runway 08; Wind: 070° 30 knots.

PIL Is the runway wet?

CTL Fastjet 812, it has been raining for some time, but there are no reports of standing water.

PIL Tower, from 812, do you mean there is no standing water?

CTL Fastjet 812. Not as far as I know, but I can't be sure.

PIL 812, I'm very heavy; I'm overshooting.

CTL Roger, Fastjet 812, understand you are going around?

PIL Affirm, 812 is going around.

CTL Roger, Fastjet 812. Climb straight ahead 2000 feet and stay on this frequency.

(A while later)

CTL Fastjet 812, what was the reason for the missed approach?

PIL Tower, I need to know if you have any standing water or not before I land at this weight.

CTL Roger, Fastjet 812, contact radar on 124. 7.

11. Visual Approach

(1) PIL Princeton Approach, Fastjet 485 Heavy. Good afternoon! With information Echo; Out of 5400 meters for 4500 meters.

CTL Fastjet 485, Princeton Approach. Good morning! Continue down to 900 meters on QNH 1011. Expect radar vectors for visual approach runway 02.

PIL Recleared to 900 meters on 1011; Roger, Fastjet 485 Heavy.

(A while later)

CTL Fastjet 485, you are number 2 in traffic; number 1 is a 757 on downwind; report traffic in sight.

PIL Traffic in sight. Fastjet 485 Heavy.

CTL Fastjet 485, cleared visual approach; right hand circuit.

PIL Cleared visual approach; right hand circuit. Fastjet 485 Heavy.

CTL Fastjet 485, make long approach. I've got a departure after the 757.

PIL Fastjet 485 Heavy. Roger, Wilco.

(2) PIL Queenston Tower, C-MQ. 20 km south; 900 meters; request joining instructions.

CTL C-MQ, join right-hand downwind runway 34, altitude 600 meters; QNH 1002.

PIL Join right-hand downwind runway 34, altitude 600 meters; QNH 1002; C-MQ.

(A while later)

PIL C-MQ, downwind.

CTL C-MQ, extend downwind; number 2 to a Cherokee 7 km on final.

PIL Extend downwind; number 2; Cherokee in sight; C-MQ.

CTL C-MQ, Orbit right; delaying action. report again on base.

PIL Orbit right, Wilco, C-MQ.

Words and Expressions

VORTAC	[ˈvɔtæk]	A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site
built-up area		Populated area 居民区
sustain	[səsˈtein]	To experience or suffer 经历或遭受
sort out		To deal successfully with a problem or a situation 解决
rating	[ˈreitiŋ]	A position assigned on a scale 等级；级别；标准
vortex	[ˈvɔːteks]	A spiral motion of fluid within a limited area, especially a whirling mass of water or air that sucks everything near it toward its centre 涡流
foam	[fəum]	To cause to produce foam 覆盖泡沫
Cherokee	[ˌtʃerəˈkiː]	切罗基（小飞机机型）

Exercises

Ⅰ. Translation

1. 注意，前面飞机报告五边上有鸟群。
2. 我们刚刚撞上了一群鸟，但目前似乎一切正常，请求目视进近。
3. 你现在要是能开始调速到 220 节，就省得我一会儿要你大幅调速了。
4. 我们没有二类天气标准，想等待天气好转。
5. 我们的襟翼放不到 10 度以上，请求小角度大速度向最长的 21 号跑道进近。
6. 有一片雾遮住了跑道南头，天气现在低于机场运行标准。
7. 由于机场专机活动，预计延误 30 分钟。
8. 我雷达发出低高度告警，请立即检查高度。
9. 雨已经下了一阵子了，但没有报告说有积水。
10. 前面着陆的飞机报告跑道的远端有积水。

Ⅱ. Word Study

maximum speed		最大速度
minimum clean air speed		最小光洁速度
minimum approach speed		最小进近速度
crash crew		救援小组
shock strut		减震支柱
tail skid		尾橇
anti-skid		防滞刹车
nose wheel		前轮
braking action		刹车效应
coefficient	[kəui'fiʃənt]	系数 braking coefficient 刹车系数
brakemeter	[breik'mi:tə]	刹车系数测量仪
Skiddometer	[skid'dɔmitə]	摩擦系数测量仪
contamination	[kən,tæmi'neiʃən]	污染物
braking action unreliable		The contamination is outside the approved range of whatever equipment is used to measure the braking action. This could either be because the contamination is too deep, or of a type that the equipment is not approved for 刹车效应不可靠

damp	[dæmp]	潮湿的
snow removed/snow treated		雪除掉了/雪处理过了
patch	[pætʃ]	小片 water patches 局部积水 icy patches 局部结冰
puddle	['pʌdl]	水坑
standing water		积水
flooded	[flʌdid]	淹没
dry snow		Snow which can be blown if loose or, if compacted by hand, will fall apart upon release 干雪
wet snow		Snow which, if compacted by hand, will stick together and tend to or form a snowball 湿雪
compacted snow		Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up 压实的雪
loose snow		松雪
firm snow		坚雪
slush	[slʌʃ]	Water-saturated snow 融雪；雪泥 frozen slush 冻结的融雪
snow with ice underneath		上面有雪，下面有冰
snowdrift	['snəʊdrɪft]	A mass or bank of snow piled up by the wind 被风刮在一起的雪堆
snow bank		扫在道边的雪堆
frozen ruts and ridges		冰辙
concrete	['kɔnkri:t]	混凝土
asphalt	['æsfælt]	沥青
groove	[gru:v]	开槽 a grooved runway 刻槽跑道
nose over		前翻；拿大顶
ground loop		打地转
sunrise/sunset		日出/日落
stack	[stæk]	堆栈 holding stack 等待航线
orbit	['ɔ:bit]	盘旋
make a three-sixty		转一圈
make a one-eighty		掉头

Ⅲ. Diagram Study

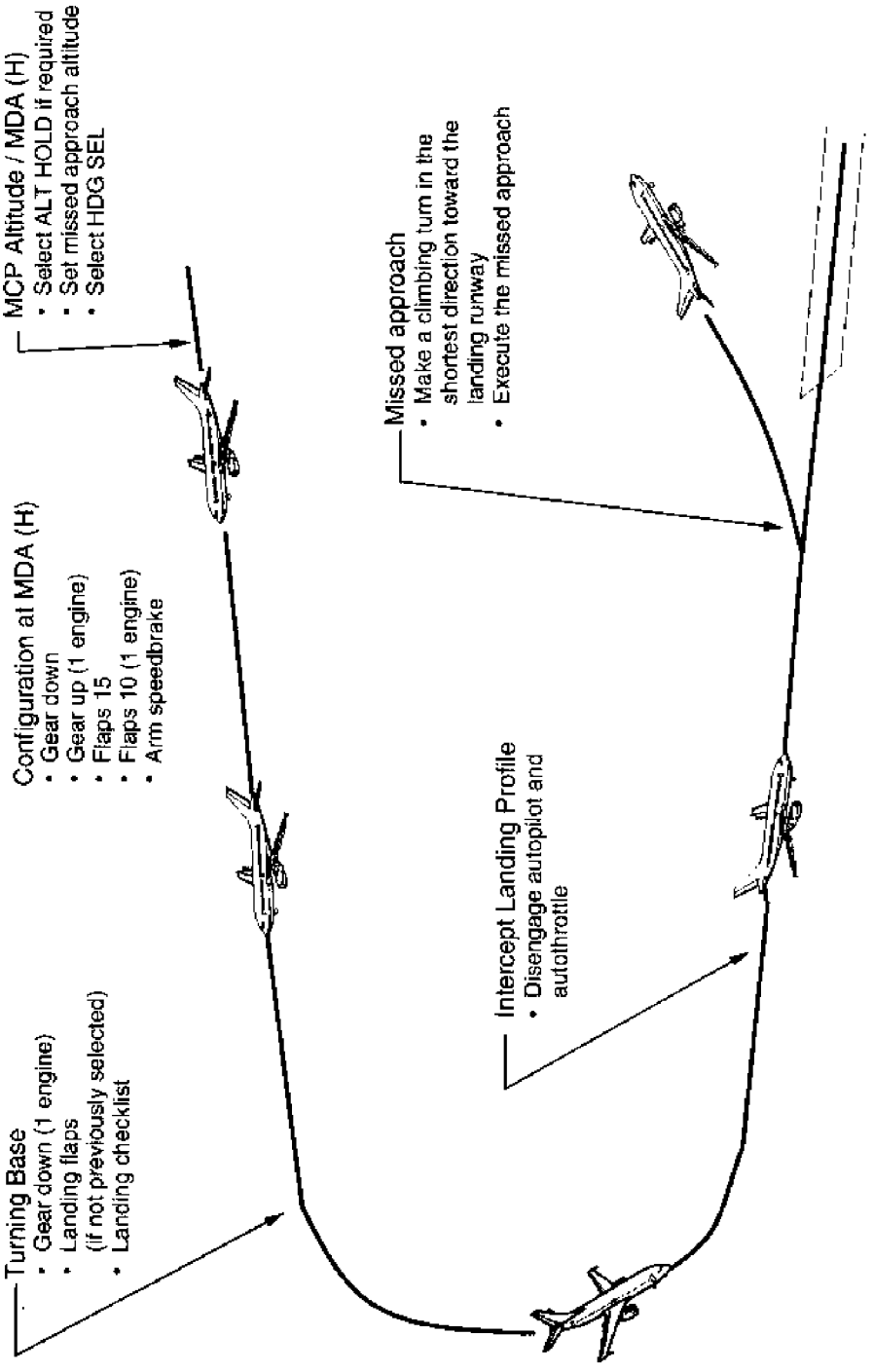

Figure 9. 1 A typical Circling Approach Operating Procedure

Section 2 Supplementary Reading

Passage 1 Non-Precision Approaches

Many months ago, the ILS to the Northeasterly runway at a major UK airport was functioning without a glidepath. This was a long-term problem and NOTAMed, but most approaches are flown to the Southwesterly runway.

On the flight in question there was a low cloud base (BKN 600 feet) for a localizer only approach to the Northeasterly runway. The controllers never set you up at the platform height (the height prior to commencing the final approach descent published in the approach procedure) for any approach on to this runway; they always put you below the published profile.

Not to worry, when carrying out an ILS you just intercept the glidepath and down you go. But for a localizer only approach the pilots must initiate the descent at the correct distance for the height and check at regular intervals to confirm that they are maintaining the correct glidepath. We set up for the approach, commenced descent at the "correct" distance and at the first check of altitude versus range we found that we were below the "glidepath". The warm fuzzy feeling is replaced by the "what has gone wrong" feeling. Was the altimeter mis-set? Had we, the pilots, made an error? The radar altimeter confirmed that we were clear of the terrain. Had the cloud base been near minima I would have ordered a go around but just as we leveled off we saw the ground and continued the approach to land. We had commenced descent at the published DME but from the wrong platform height.

Last night, we landed at the airport after a flight from another. The METAR was 16020G30 8000 FEW 800 BKN 1800 RN. The other was operating on the Easterly runway with the glidepath switched off, presumably because the flight checker had found a problem earlier in the day. The approach was commenced in cloud, it was dark. The approach was flown with a strong crosswind, severe turbulence from the wind passing over the cliffs to the south and the windscreen wipers operating. The approach was nearly abandoned because of the severe turbulence at low level. In addition to all this, we needed to calculate the point required to commence our descent because we were radar directed on to the final approach and descended below the platform altitude by ATC. Fortunately we had our wits about us and had foreseen the problem, but we could have done without this extra workload.

I would like it if controllers could stick to the published heights or the published procedures

are changed to what reflect what happens in practice.

Discussion question: What does the author think controllers should do in such a case?

Words and Expressions

BKN		Broken 多云
level off		改平
fuzzy	[ˈfʌzi]	Indistinct; confused 模糊的; 混乱的
METAR	[miːˈtɑː]	Coded aerodrome Met report. Also SPECI, special civil aviation weather report, and TAF, terminal aerodrome forecast of weather expected
RN		Rain 雨
windscreen wiper		风挡雨刷
wit	[wit]	The natural ability to perceive and understand 智力

Passage 2 Misheard Clearance - Level Bust

On arrival at a major UK airport, we entered a hold at FL150 with approximaely 30 minutes delay due to strong winds. Stepped down in the holding pattern 1000 feet each hold (approximately) i. e., 150, 140, 130, 120, 110, 100, 90.

We were transferred to the Director at around FL100. Next clearance understood as descend FL80 (next lower level). At or near FL80 ATC ask if we have TURNED onto heading 080.

Need I describe that dreadful feeling? Mortified! I apologized on the R/T, ATC responded, "No problem", gave updated heading and further descent. However, that airport is not the place to be at the wrong level and heading on a busy, rough Sunday night!

Having given the incident much thought in the days following the incident, I believe that a major contributing factor was the expectation, quite reasonably, of further descent to FL80 and hearing what we thought we should hear, thus confusing heading and cleared level.

As vulnerable as one can be on a new type, it could have happened on my previous type (23 years 13000hrs). Also, I had a good First Officer.

Discussion question: What is the cause of this error?

Words and Expressions

dreadful	[ˈdredful]	Exceptionally bad or displeasing; Very unpleasant 可怕的；令人不快的
mortify	[ˈmɔːtifai]	Feel extremely embarrassed or humiliated 窘迫的；感到羞耻的

Chapter 10 Final Approach and Landing

Section 1 Dialogues

1. Wind Shear Alert

(1) PIL Tower, Fastjet 983. I highly recommend that you change the runways and land northwest; you have such a tremendous wind shear near the ground on final.

CTL Fastjet 983. We're indicating wind right down the runway at 15 knots.

PIL I don't care what you're indicating. I'm just telling you that there's such a windshear on the final on that runway and you should change it to the northwest.

CTL Fastjet 983, thanks for your information. I'll have to check with other pilots.

(2) PIL Fastjet 321, passing outer marker.

CTL Fastjet 321, continue your approach; landing clearance in 30 seconds; previous aircraft reported windshear in the last 300 feet of final approach, with an airspeed loss of 15 knots.

PIL Fastjet 321, roger. It's rather bumpy up here.

CTL Roger, Fastjet 321. I'd appreciate your comments on the windshear after landing.

(A while later)

CTL Fastjet 321, what kind of windshear did you get?

PIL We had a loss of 20 knots at 2000 feet and a gain of 20 knot at about 100 feet.

(3) PIL Tower, Fastjet 756, 8 mile final, visual, runway 22R.

CTL Fastjet 756, continue approach. Windshear alert: a gain or loss of 20 knots; from 2000 feet all the way down; reported by numerous types. Equipment is standing by on the main taxiway as a cautionary measure.

PIL Fastjet 756, roger on the windshear.

2. Lighting

(1) PIL Fastjet 2851, Final. We have the runway in sight.

CTL Fastjet 2851, Cleared to land, wind 270° 15 m/s.

PIL Fastjet 2851, Cleared to land.

(A while later)

PIL Please dim the lights; they are a bit too bright. Fastjet 2851.

CTL Fastjet 2851, they are already on minimum settings.

(2) PIL Fastjet 2426, Short final.

CTL Fastjet 2426, wind variable 16 knots gusting to 20. Cleared to land.

PIL Fastjet 2426, Landing.

(A while later)

PIL Please switch off the sequence flashers.

(3) PIL Fastjet 149 is passing the outer marker.

CTL Fastjet 149 is cleared to land, 270° 5 m/s.

PIL Fastjet 149, can you turn the lights down? It's a bit bright from up here.

CTL Fastjet 149, if you wish. But they're on the standard setting for the VIS.

PIL We'd like them down a bit, Fastjet 149.

CTL Roger, how's that, Fastjet 149?

PIL Much better, thanks. Confirm we're cleared to land, Fastjet 149?

CTL Fastjet 149 is cleared to land, 270° 7 m/s.

PIL Cleared to land, Fastjet 149.

(4) PIL Queenston Tower, Fastjet 697, long final.

CTL Fastjet 697, continue approach. Number 1 to land, wind calm.

(A while later)

CTL Fastjet 697, go around; standard procedure; there's a runway lighting failure.

PIL Going around, Fastjet 697. Confirm the standard procedure?

CTL Fastjet 697, climb to 3000 feet on runway heading and contact Approach on 126.55.

PIL Climbing to 3000 ft, and Approach on 126.55, Fastjet 697.

PIL Queenston Approach, Fastjet 697.

CTL Fastjet 697, maintain 3000 ft; Proceed to holding area over Roseville.

PIL We're running low on fuel; we cannot hold longer than five minutes. Do you know how long the delay will be?

CTL Fastjet 697. Delay is undetermined for the moment. There seems to be a prob-

lem with the generators.

PIL Request divert to Princeton, Fastjet 697.

(5) PIL Approach, Fastjet 2864. Do you have any idea what those flares on our right can be? We're about 8 miles from touchdown.

CTL Fastjet 2864. It must be some fireworks. Today's the Feast of Lanterns and they're letting off fireworks all over the place at this time.

PIL Thanks.

(6) PIL Approach, Fastjet 858. What are those floodlights just below?

CTL Fastjet 858, we always get such queries on Wednesday nights. Don't mistake them for the airport lights. It's a football team who're training at a nearby stadium.

(7) PIL Fastjet 9403, Outer marker 10.

CTL Fastjet 9403, Continue approach for runway 04R. Be advised the high intensity lights are on 100%.

(8) CTL Be informed the red side bars in the approach lighting are out of service. CAT II landings not available.

(9) CTL Be advised the first cross bar in the approach lighting is off.

(10) PIL Tower, Fastjet 776. Can you turn up the runway lights a notch or two? They look rather dim from here.

CTL OK, Fastjet 776. Now it's on strength 4, how do they look?

PIL Well, I must say they are still not bright enough.

CTL That is strange. Do you have your sunglasses on by any chance?

PIL I'm so sorry, turn them down to strength 3 please.

3. Requesting Special Passenger Service

(1) PIL Approach, Fastjet 2751. We have what seems to be a heart attack on board. Will you get an ambulance to meet us?

CTL Say again, I was on the phone.

PIL We need an ambulance for a seriously ill passenger, Fastjet 2751.

(2) PIL Tower, Fastjet 398. Can you call for a wheel chair to meet us on the stand.

CTL Excuse me, Fastjet 398. What is it you want?

PIL We need a wheel chair for a handicapped passenger.

CTL Roger, I will advise your company.

4. Wind Check

(1) PIL Fastjet 252 is at the outer marker.

CTL Fastjet 252 is cleared to land; wind 210° 20 knots; gusting 35 knots.

PIL Roger, Fastjet 252 is cleared to land on 26. We'd appreciate further wind checks on final.

CTL Roger, Fastjet 252.

(A while later)

CTL Wind 220 degrees, gusting 33 knots, do not acknowledge.

(A while later)

CTL 240, 19 knots.

(A while later)

CTL Fastjet 252, on runway at 22; next convenient right; contact Ground on 121.7, bye.

PIL Next right; 121.7; thanks a lot; Fastjet 252; bye.

5. Landing Incidents

(1) CTL Fastjet 350, cleared to land; wind 320° 12 m/s.

PIL Cleared to land, Fastjet 350.

(A while later)

PIL Queenston Tower, Fastjet 350, we aquaplaned after touchdown and have at least 2 tires blown out on right main gear; we are unable to vacate the runway; please advise company maintenance and we request passenger steps and buses to take the passengers to the terminal.

(2) PIL Tower, Fastjet 464, we just hit a number of buzzards, and the engine is overheating; request emergency services on landing.

CTL Roger, Fastjet 464, you are cleared to land; fire trucks will be coming to you.

(3) CTL FXH, do you require the safety services?

PIL Negative, we did a ground loop, but we managed to stay on the runway. We just need a tug to tow us in.

6. Backtrack after Landing

(1) PIL Fastjet 421 is at the outer marker.

CTL Fastjet 421, continue approach, a 737 just rolling.

PIL Fastjet 421.

(A while later)

CTL Fastjet 421 is cleared to land; wind 250 degrees 12 m/s.

PIL Fastjet 421, landing.

(A while later)

PIL Fastjet 421, can we vacate first right?

CTL Fastjet 421, negative. Will you make a one eighty and backtrack to vacate on the 16 fast turn off? There's a fire engine on the fast turnoff.

PIL Fastjet 421, roger. 16 fast turn-off, if you insist. But can't you get the fire engine to move?

CTL Fastjet 421, negative, sir. He's for an emergency aircraft at the outer marker.

PIL OK, Fastjet 421 will backtrack.

CTL Fastjet 421, expedite vacating. The landing emergency traffic is at three miles.

PIL Fastjet 421 is expediting.

7. Information for ATC

(1) PIL Fastjet 442 has vacated the runway. For your information, the visibility is worse than you reported. We can hardly see the taxiway centerline. Suggest you hold further approaches.

CTL Fastjet 442, roger, thanks. The Visibility surely has deteriorated in the last few minutes. Are you able to taxi in?

PIL Affirm. We can manage our way to the apron slowly. Fastjet 442.

(2) CTL Fastjet 567, continue approach; I have two departures to go.

PIL Roger, Fastjet 567. Your VASIS seems to be indicating lower than the ILS glide slope. About 2° lower.

CTL Fastjet 567, roger. They have just replaced the VASIS and no calibration has been made. Thanks your information.

CTL Fastjet 2234, caution, a previous landing aircraft reported an erroneous indication on the VASIS, and I'd like your comments on it after landing.

8. A Local Flight

(1) PIL Fastjet 329 is turning base for touch-and-go.

CTL Fastjet 329 is cleared touch-and-go; watch out for the gliders southeast of the field.

PIL Cleared touch-and-go, Fastjet 329.

CTL Fastjet 329, how many more circuits are you planning to make?

PIL 3 more. Fastjet 329.

(2) PIL Approach, F-PYHE, turning final for a low-approach.

CTL F-HE, make a full-stop landing this time due to heavy inbound traffic; expect to resume flight in 30 minutes.

9. Miscellaneous Landing Instructions

(1) CTL Will you accept a vector for a visual approach to a 3 mile final? Or do you want to be extended further out.

(2) CTL Continue; will call you when the Short 360 now on final has vacated the runway.

(3) CTL Maintain 90 knots to short final and touch down so as to vacate the runway at the upwind end.

(4) CTL Continue approach. You're Number 2. Number 1 touching down.

(5) CTL Touch down to vacate first right.

(6) CTL Caution! Downdraught on final.

(7) CTL The ramp vehicle is just vacating the runway. You are cleared to land now.

Words and Expressions

jam	[dʒæm]	To cause (moving parts, for example) to lock into an unworkable position 卡阻
dim	[dim]	To decrease the intensity of lights 使暗淡
sequence flashers		顺序闪光灯
aquaplane	['ækwəplein]	To rise up onto a thin film of water between the
(hydroplane)	['haidrəuplein]	tires and road so that there is no more contact with the runway 滑水现象
flock	[flɔk]	A group of animals that live, travel, or feed together 兽群；鸟群
vicinity	[vi'siniti]	A nearby, surrounding, or adjoining region; a neighborhood 附近；邻近
Feast of Lanterns		元宵节
floodlight	['flʌdlait]	A unit that produces a beam of intense light; a flood 探照灯；泛光灯

stadium	[ˈsteidiəm]	A large, usually open structure for sports events with tiered seating for spectators 体育场
unruly	[ʌnˈruːli]	Noisy and lacking in restraint or discipline 不守规矩的
bunch	[bʌntʃ]	A group of like items or individuals gathered or placed together 一串；一群
buzzard	[ˈbʌzəd]	兀鹰
notch	[nɔtʃ]	A level or degree（非正式用语）标准；级别
deteriorate	[diˈtiəriəreit]	To grow worse; degenerate 恶化

Exercises

Ⅰ. Translation

1. 我只是告诉你五边有强风切变，应该改换跑道向南落地。
2. 前一架飞机报告在五边最后 500 英尺上有风切变，空速掉了 20 节。
3. 灯太暗了，请调亮点儿。
4. 我们油量不多，等待不能超过 5 分钟，你知道要延误多久吗？
5. 不要把街灯当成跑道灯等了。
6. 请帮个忙，给残疾乘客要个轮椅。
7. 落地时爆胎了，现在无法脱离跑道，请给我们叫拖车、客梯车和摆渡车。
8. 我们刚刚撞了几只乌鸦，二发过热，落地时要应急服务。
9. 跟你讲一下，能见度比你报的要低，我们也就勉强能看见滑行道中心线，建议你不要让后面的飞机再进近了。
10. 由于进港飞机太多，你这次做个全停，预计 30 分钟后可以继续。

Ⅱ. Word Study

current	[ˈkʌrənt]	当前的；现行的
latest	[ˈleitist]	最新的；最近的
valid	[ˈvælid]	有效的
up-to-date	[ˈʌptəˈdeit]	最新的
distress	[disˈtres]	A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance 遇险
urgency	[ˈəːdʒənsi]	A condition of being concerned about safety and of requiring timely but not immediate assistance; a potential distress condition 紧急

emergency	[iˈməːdʒnsi]	A distress or an urgency condition 紧急情况
heart attack		心脏病发作
appendicitis	[əˌpendiˈsaitis]	阑尾炎
stroke	[strəuk]	中风
asthma	[ˈæsmə]	哮喘
pain	[pein]	疼痛
labour	[ˈleibə]	分娩
		A passenger is in labour. 有旅客分娩
shock	[ʃɔk]	休克
unconscious	[ʌnˈkɔnʃəs]	（暂时）失去知觉的
fracture	[ˈfræktʃə]	骨折
medical attention		医护
first-aid	[ˈfəːstˈeid]	急救的
anti-collision beacon		防撞灯
logo	[ˈləugəu]	徽标
navigation light		航行灯
strobe	[strəub]	频闪灯
landing lights		着陆灯
glare	[gleə]	An intense, blinding light 强光
clutter	[ˈklʌtə]	雷达杂波
wheel chair		轮椅
stretcher	[ˈstretʃə]	担架
disabled	[disˈeib(ə)ld]	handicapped 残疾人
		a disabled aircraft 动弹不了的航空器
patient	[ˈpeiʃənt]	病人；患者
infant	[ˈinfənt]	婴儿
pregnant	[ˈpregnənt]	怀孕的
escape slide/escape chutes		逃逸滑梯
rescue team		救援队
victim	[ˈviktim]	遇难者
survivor	[səˈvaivə]	生还者
high sea		公海
coast guard		海岸卫队（美）
parachute jumping		跳伞
aerial dropping		空投
aerial advertising		空中广告

aerial dispersal	航空喷施
aerial filming	航空摄影
aerial forest conservation	航空护林
aerial patrol	空中巡查
aerial photography	空中拍照
aerial prospecting	航空探矿
aerial remote sensing	航空遥感
aerial sightseeing	空中游览
aerial spraying	航空喷洒（撒）
weather modification	人工影响天气
cloud seeding	人工降雨

Ⅲ. Diagram Study

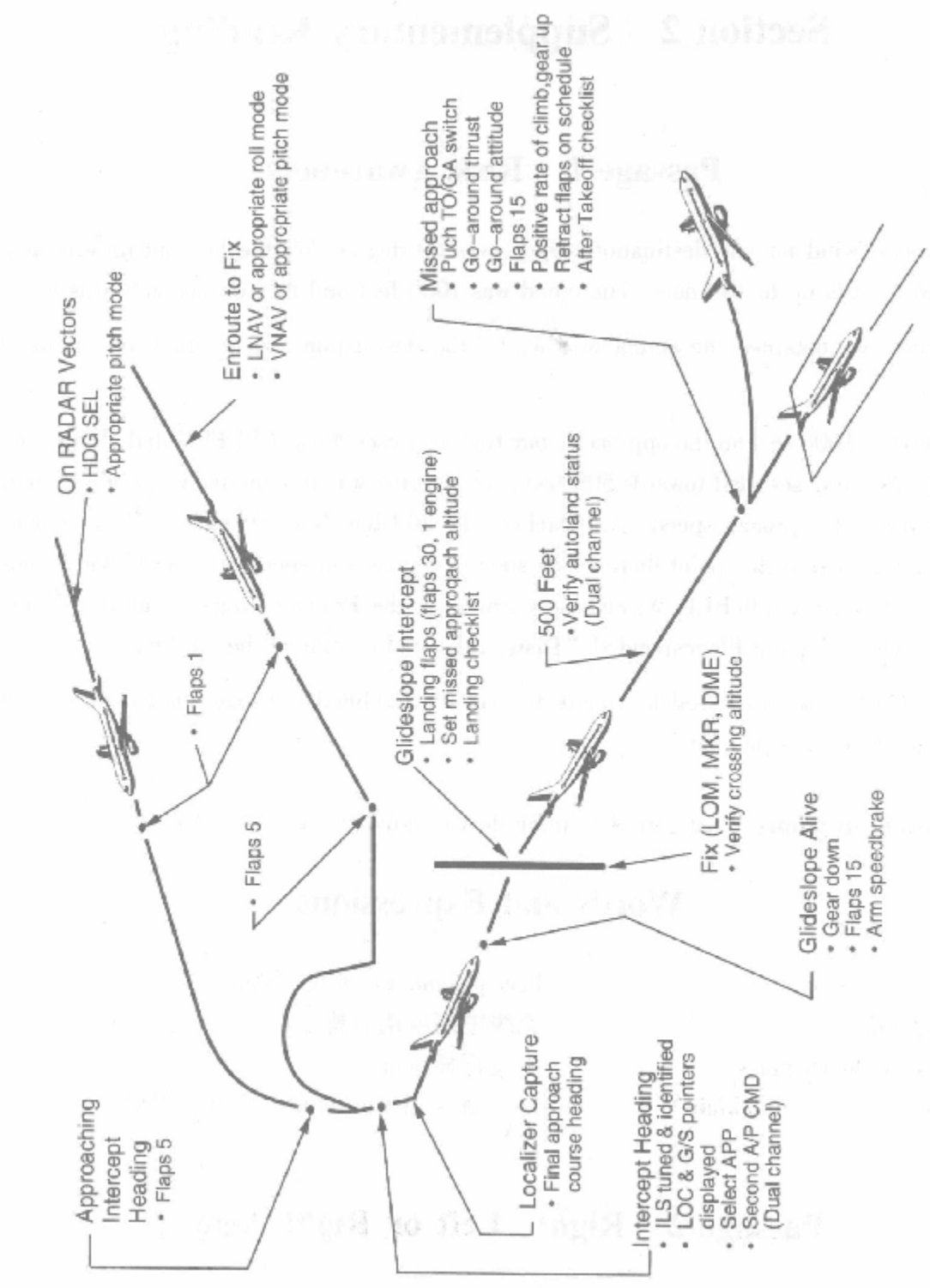

Figure 10. 1 A typical ILS Approach Operating Procedure

Section 2 Supplementary Reading

Passage 1 Risk Awareness

The forecast wind for our destination airport was 60 degrees off the landing runway at 25 knots with gusts up to 40 knots. The cloud was 1000 feet and the runway state was wet.

En route we obtained the actual weather for the destination airport; this was similar to forecast.

At around 1000 feet on the approach, our Rate of Descent was 650 FPM and all appeared normal. As we descended towards 500 feet, more thrust was progressively applied to maintain the correct approach speed. Approaching the 200 feet Rad Alt call, still more power was required and at this point there was a sudden decrease in speed of some 15 knots plus; we then received a full RED Windshear warning on the Primary Flight Displays. I called "GO AROUND"; the PF responded "Disregard" and continued the landing.

After landing we discussed the incident; The PF declined my suggestion that he report the incident to the Company.

Discussion question: What sort of training do you think this crew need?

Words and Expressions

FPM		Feet per minute 英尺/分钟
Rad Alt call		无线电高度语音提示
Primary Flight Displays		主飞行显示屏
decline	[di'klain]	To express polite refusal 婉拒；谢绝

Passage 2 Right, Left or Right Again!

The weather at the southern European major airport was marginal - Category I with RVRs of >1500 meters but an overcast cloud base of 200 feet. Initially, we assumed that LVPs

(Low Visibility Procedures) would be in force and planned for the published, preferential runway of 04R.

The ATIS is received quite late into the airport because of the nearby mountains but, when it was, it made no mention of the LVPs and reported that 04L was in use for arrivals. We reprogrammed the FMGC and re-briefed for the new approach noting that the two runways have significantly different go-around procedures.

However, upon contact with the approach controllers we were told to expect 04R and that LVPs were not in force. This then required further re-programming and re-briefing at what was becoming a fairly late stage of the descent. We were then offered the usual tight vectors with a tailwind which we declined and took extra track miles. Whilst the visibility was moderate below the cloud, we attained visual reference at approximately 20 feet above MDH and elected to continue with a Category I autoland. We both felt that LVPs should have been in force.

After landing, we were then given complex taxi instructions, at speed, which included crossing the active departure runway in moderate visibility. We insisted upon a slower and clearer set of instructions.

My reason for writing this report is that the events described above happened to me almost identically a few weeks before, albeit in better weather. Furthermore, on that occasion, when we departed we were given three departure runway changes. Similarly to the arrival scenario, the departures are very different (i. e. turn in different directions) and have very different emergency turn procedures (which also turn in different directions). For that departure we were eventually given 04R with a SID that turns to the right but once under radar, we were offered a more expeditious left turn by the controller! We declined this because we had no visual contact with the terrain, because of the usual murk in the adjacent valley, and felt our escape strategy in the event of an engine failure would be unclear. We flew the SID as cleared.

In conclusion, we felt it was inappropriate to have multiple runway changes at an airfield with significantly different SIDs and GA procedures especially when you are descending over mountainous terrain or about to depart over it. The potential for loss of situational awareness resulting in landing on the wrong runway or turning towards danger is great. A crew with less experience of this ATC unit or less diligence could well become disorientated. Add to this the marginal weather and you wonder whether anything was learned from the accident at Linate.

Discussion question: What do you think the author really worried about?

Words and Expressions

FMGC		Flight Management Guidance Computer 飞行管理指引计算机
MDH		Minimum Descent Height 最低下降高度
scenario	[si'nɑ:riəu]	An outline or model of an expected or supposed sequence of events 情节；形势
murk	[mə:k]	Partially or totally dark; gloomy 黑暗；阴沉
GA		Go-around 复飞
diligence	['dilidʒəns]	Perseverance in carrying out action 勤奋的
disorientate	[dis'ɔ:riənteit]	失去方向感；迷惑

Chapter 11 Missed Approach

Section 1 Dialogues

1. Low Visibility

(1) PIL Fastjet 125, outer marker.

CTL Fastjet 125, wind is calm; cleared to land.

(A while later)

PIL Fastjet 125. No contact at minima; going around.

CTL Fastjet 125, standard procedure; Call approach 124.0.

(2) PIL Approach, Fastjet 384. Is fog dispersal available on 25?

CTL Affirm, Fastjet 384. But we must be given 30 minutes' notice. It's too late on this approach; you'll have to hold for a while.

PIL I thought 20 minutes' notice was enough.

CTL That's only if the system is already at idle, because then we just have to run it up.

PIL OK. Fastjet 384 requests holding instructions.

2. Wind Shear

(1) PIL Fastjet 594, outer marker.

CTL Fastjet 594, you're number 1 to land. Caution wind shear reported at 600 feet 2 miles final.

PIL Number 1 to land, Fastjet 594.

(A while later)

PIL Fastjet 594, going around.

CTL Fastjet 594, standard procedure, when passing 1000 ft, turn right to Roseville VOR.

(2) PIL Tower, Fastjet 048. Established on the ILS.

CTL Fastjet 048, continue. Previous A319 reported windshear at 800 feet, airspeed

loss 20 knots, strong right drift.

PIL Fastjet 048 roger.

(A while later)

CTL Fastjet 048, surface wind 320°8 m/s, cleared to land runway 31.

PIL Cleared to land runway 31, Fastjet 048.

(A while later)

PIL Fastjet 048 is going around; we might have damaged the airframe on landing; request an emergency landing on 13.

PIL Fastjet 048, Fastjet cleared to land on 13; report short final; I'll call emergency service for you.

3. Vehicle on the Runway

(1) PIL Fastjet 058, outer marker.

CTL Fastjet 058, report short final.

(A while later)

PIL Fastjet 058, short final.

CTL Fastjet 058, go around, I say again, go around. Unreported vehicle is crossing the runway.

PIL Fastjet 058 is going around.

CTL Fastjet 058, climb to 2000 ft, QNH 1023, call 125.75.

4. Stationary Aircraft

(1) CTL Fastjet 357, report outer marker, a Boeing 747 is lining up.

(A while later)

PIL Fastjet 357. Outer marker.

CTL Fastjet 357, reduce to minimum approach speed; the Boeing 747 hasn't started rolling; I'll keep you advised.

PIL Fastjet 357, reducing to 150 Knots.

(A while later)

CTL Fastjet 357. The 747 is still lined up; go around; standard procedure.

PIL Going around. Fastjet 357, roger.

(2) PIL Queenston Tower, good morning! Fastjet 212, over outer marker.

CTL Fastjet 212, good morning; you are number 2 to land; report short final.

PIL Number 2, Fastjet 212.

(A while later)

PIL Fastjet 212, short final.

CTL Fastjet 212, go around; the aircraft in front of you is unable to vacate the runway.

PIL Going around, Fastjet 212.

(A while later)

PIL Approach, Fastjet 212.

CTL Fastjet 212, climb to 4000 ft, proceed to Roseville holding pattern; runway 07 is blocked by a crashed aircraft.

PIL Roger, Fastjet 212, may we proceed to runway 12?

CTL Fastjet 212, standby one, I'll call you back.

CTL Fastjet 212, can you accept a crosswind of 18 knots gusting to 25?

PIL Affirm, Fastjet 212.

(3) PIL Tower, Fastjet 513. Established on the localizer.

CTL Fastjet 513, continue approach; I have one more departure to go.

PIL Continue approach, Fastjet 513.

CTL Fastjet 513, be prepared for a possible overshoot; the departing aircraft is not moving.

PIL Roger, Fastjet 513.

CTL Fastjet 513, wind calm; cleared to land now.

PIL Cleared to land, Fastjet 513.

5. Hazards on the Runway

(1) CTL Fastjet 942, go around; the aircraft in front of you blew a tire on landing, scattering chunks of rubber all over the runway.

PIL Going around, Fastjet 942.

6. Separation Erosion

(1) PIL Fastjet 028 is established on the localizer.

CTL Fastjet 028, say speed.

PIL Fastjet 028, 160 knots. What's my distance from the aircraft I have in sight ahead?

CTL 4 nautical miles.

PIL Roger, thank you.

CTL Fastjet 028, reduce to 140 knots.

PIL Fastjet 028. That's impossible. 150 is our minimum approach speed.

CTL Roger, 150 then.

(A while later)

PIL Fastjet 028, outer marker.

CTL Roger.

(A while later)

CTL Fastjet 028, go around, I say again, go around. You are too close to preceding aircraft.

PIL Going around, Fastjet 028.

CTL Fastjet 028, standard procedure.

(A while later, the aircraft has completed the missed approach and is now on its second approach.)

CTL Fastjet 028, say level.

PIL Fastjet 028 is maintaining FL 40.

CTL Fastjet 028, expect further descent shortly, heading 080.

PIL Roger, heading 080, Fastjet 028.

CTL Fastjet 028, speed 170.

PIL 170, Fastjet 028. Would you please arrange adequate separation for me this time? I don't have enough fuel for another missed approach?

CTL Roger.

(A while later)

CTL Fastjet 028, descend to 3000 ft, QNH 1021.

PIL 3000 feet , 1021, Fastjet 028.

CTL Fastjet 028, turn left heading 300, report established.

(2) CTL Fastjet 733, you're on an eight mile final for 27R; you have a Twin-otter 4 miles ahead; reduce speed to 150 knots.

PIL Slowing down to 150 for you, Fastjet 733.

CTL Fastjet 733, preceding traffic is at 90 knots now; two and a half miles ahead; further reduce speed to 130 knots.

PIL Fastjet 733, slowing further to 130 knots.

CTL Fastjet 733, you're three miles to touchdown; preceding traffic now two mile ahead; reduce speed to 110 knots.

PIL Fastjet 733, negative, Sir, our stall speed is one twenty.

CTL Fastjet 733, go around.

7. Blackout

(1) CTL Fastjet 832, Go around; standard procedure; approach lighting has gone out.

PIL Fastjet 832, going around. But may we have an expected approach time?

CTL Fastjet 832, delay not determined; the airport power plant has failed; they are switching on the standby generators; I'll keep you advised.

PIL Tower, Fastjet 832. What is the standard procedure?

CTL Fastjet 832, Climb on runway heading to 3000 ft and contact Approach on 125. 7.

PIL Runway heading; 3000 ft; 125. 7; Fastjet 832.

8. Undercarriage Problems

(1) CTL Fastjet 019, you are number 2; report short final.

PIL Fastjet 019. We've got to go around; we're having difficulties with the landing gear.

CTL Roger, Fastjet 019. Standard procedure.

(A while later)

CTL Fastjet 019, what are your intentions?

PIL Fastjet 019. We'd like to hold over Roseville to make further checks.

CTL Fastjet 019, proceed to Roseville at FL 50; contact APP on 124. 0.

PIL Roseville; FL 50; changing to 124. 0; Fastjet 019.

(A while later, the aircraft is now holding over Roseville at FL 50.)

PIL Fastjet 019 is holding over Roseville at FL 50.

CTL Fastjet 019, advise when ready for another approach.

PIL Roger, Fastjet 019.

(A while later)

PIL Fastjet 019. Check complete; I think gear is still jammed; request foam.

CTL Roger, Fastjet 019. Continue holding; say your endurance, please.

PIL Endurance about 30 minutes.

CTL Fastjet 019, do you wish to climb?

PIL Negative, we can burn fuel faster at this altitude.

APP Fastjet 019, it's going to take about 20 minute to foam the runway; you'll land on 02.

PIL Roger, Fastjet 019.

(A while later)

CTL Fastjet 019, what's your endurance now?

PIL We have 4000 pounds left, that's 20 minute endurance; we'd like to keep about 3000 pounds in case we had to go around.

CTL Fastjet 019, turn left heading 120; runway is being foamed; expect approach shortly.

PIL Roger, 019.

CTL Fastjet 019, orbit left at FL 50; foam carpet should be ready in 5 minutes.

PIL Roger, 019.

(A while later, the aircraft has been descended to 3000 ft and is going to intercept the localiser.)

CTL Fastjet 019, the foam carpet begins 600 m after the threshold; it's 15 m wide and 600 m long; report established on the localizer.

PIL Fastjet 019 is established.

CTL Fastjet 019, confirm you have enough fuel to go around.

PIL Affirm, we could go around.

CTL Fastjet 019, continue approach, contact TWR 120.9.

(2) PIL Fastjet 995 is established on the ILS for 26.

CTL Fastjet 995, report outer marker; wind 360° 20 knots, gusting 30 knots.

PIL Fastjet 995.

(A while later)

PIL Fastjet 995, we have undercarriage trouble; request to go around.

CTL Fastjet 995, climb to 2000 ft and turn left heading 200.

PIL 2000 feet, left 200, Fastjet 995.

CTL Fastjet 995, do you intend to make another approach straight away or to hold somewhere?

PIL I'll have to hold for a while to sort this out.

CTL OK, Fastjet 995. Climb to 3000 feet and proceed to Roseville, contact Approach now on 126.55.

(A while later, Fastjet 995 has contacted Approach and been given holding instructions.)

CTL Fastjet 995, how are thing coming along out there?

PIL Fastjet 995. We have a full emergency now; we're unable to put out the nose gear.

CTL Roger, Fastjet 995. Leave Roseville heading 080.

PIL Turning on to 080; we'd like to make a low-pass for visual check.

CTL Fastjet 995, make your low-pass on the right-hand side of 26 over the apron; then if you have to make an emergency landing, it'll have to be runway 02.

PIL Roger.

(A while later, Fastjet 995 is radar vectored to the ILS and instructed to contact the Tower.)

PIL Tower, Fastjet 995 is turning on to the ILS for a low-pass over 26.

CTL Fastjet 995, report short final.

(A while later)

PIL 995, short final.

CTL Fastjet 995, you make the low-pass on the right-hand side of the runway, I'll keep you advised.

PIL Fastjet 995, roger.

(A while later)

CTL Fastjet 995, your nose wheel doesn't appear to be down.

PIL Roger, can you get our engineers out and we'll do another low-pass.

(995 carries out the missed approach procedure, contacts APP).

PIL Request permission for touch-and-go; we'll attempt to jar the wheel down.

CTL Fastjet 995, cleared touch-and-go on 26; turn left 320; report established on the ILS.

(Fastjet 995 is cleared for touch and go by the Tower and then reports to the Tower while going around.)

PIL Fastjet 995 is going around.

CTL Roger, Fastjet 995. Climb to 2000 feet; turn left heading 230.

PIL 2000 feet; left 230; Fastjet 995.

(Fastjet 995 contacts APP after completing the missed approach.)

PIL Fastjet 995. Nose wheel still appears to be jammed; we'll have to make a belly landing on 02.

CTL Roger, Fastjet 995. I'll position you on the ILS for 02 about 10 miles from the field, will that be OK with you?

PIL That's fine.

(3) PIL Tower, Fastjet 921 just turned on final.

CTL Fastjet 921, continue approach to 18L.

PIL Fastjet 921, it looks like we are going to have to circle. We don't have a green light on our nose gear yet.

CTL Fastjet 921, go around, climb straight ahead to 600 meters and contact approach 126.0.

9. Calibration Flight

(1) PIL Good morning, Kingston tower. Flight check 001 with you. We are inbound on

NDB 02L approach. It will be a low-approach only at MDA.

CTL Roger, Flight check 001. Be advised we have multiple aircraft inbound for 02R.

PIL Roger, we'll break off the approach at MAP.

CTL Break off the approach to the west. What are your intentions after the NDB 02L approach?

PIL We plan to check the ILS 02R approach.

Words and Expressions

minimum	[ˈminiməm]	A lower limit permitted by law or other authority 最低标准
dispersal	[disˈpəːsəl]	驱散
run up		高速运转
go out		To become extinguished 熄灭
power plant		A complex of structures, machinery, and associated equipment for generating electric energy from another source of energy, such as nuclear reactions or a hydroelectric dam 发电厂
block	[blɔk]	To stop or impede the passage of or movement through; obstruct 妨碍; 封锁; 阻塞
crash	[kræʃ]	To fall, hit, or break with force with a loud noise 碰撞; 坠毁
jar	[dʒɑː]	To bump or cause to move or shake from impact 震动
belly	[ˈbeli]	The underside of the body 腹部
low approach		An approach over an airport or runway following an instrument approach procedure or VFR approach, including the overshoot maneuver, where the pilot intentionally does not make contact with the runway 拉升

Exercises

Ⅰ. Translation

1. 决断高度没有能见，我们复飞了。

2. 复飞，有车辆穿跑道。
3. 继续进近，一架 B777 刚刚开始起飞滑跑。
4. 复飞，前面的飞机在跑道上动不了了。
5. 你能接受侧风 18 节阵风 25 节着陆吗？
6. 准备好复飞，起飞飞机还没有动。
7. 复飞，你前面的飞机爆胎了，跑道上有洒落的胶皮。
8. 延误未定，发电厂故障，正在开备用发电机，有消息我再通知你。
9. 泡沫从入口后方 500 米处开始，800 米长，20 米宽。
10. 我将把你引导到 36R 跑道航向道距接地点 8 海里处，可以吗？

Ⅱ. Word Study

minimum fuel
A situation in which an aircraft's fuel supply has reached a state where little or no delay can be accepted 最低燃油状态

endurance [in'djurəns]
续航力

run out of
用光

fuel shortage
燃油不足

fuel transfer pump
输油泵

cross feed
交叉输油

fuel cell
油箱

drain cock
放水旋塞

fuel quantity probe
油量探头

vent [vent]
通风孔

spin [spin]
Rapid descent of an aircraft in a steep spiral 螺旋

loop [lu:p]
A flight maneuver in which an aircraft flies a circular path in a vertical plane with the lateral axis of the aircraft remaining horizontal 拉斤斗

Dutch roll
A type of aircraft motion, consisting of an out-of-phase combination of "tail-wagging" and rocking from side to side. The name comes from the movement that (Dutch) skaters make when skating on ice 荷兰滚

roll/pitch/yaw
滚转/俯仰/偏转

damper ['dæmpə]
A device that eliminates or progressively diminishes vibrations or oscillations, as of a magnetic needle 阻尼器
yaw damper 偏航阻尼器

inboard	[ˈinbɔːd]	内侧的 inboard flap 内侧襟翼
outboard	[ˈautbɔːd]	外侧的
port	[pɔːt]	1）左舷 port engine 左发 2）端口 static port 静压口
leading edge		前缘
trailing edge		后缘
wing root		翼根
winglet		A near vertical extension of the wing tips 翼梢小翼
trunk route		干线
feeder route		支线
buffet	[ˈbʌfit]	振动
vibrate	[vaiˈbreit]	抖动
flutter	[ˈflʌtə]	颤动
shake	[ʃeik]	摇动
jolt	[dʒəult]	摇晃
scrape	[skreɪp]	刮擦
scratch	[skrætʃ]	抓伤

Ⅲ. Diagram Study

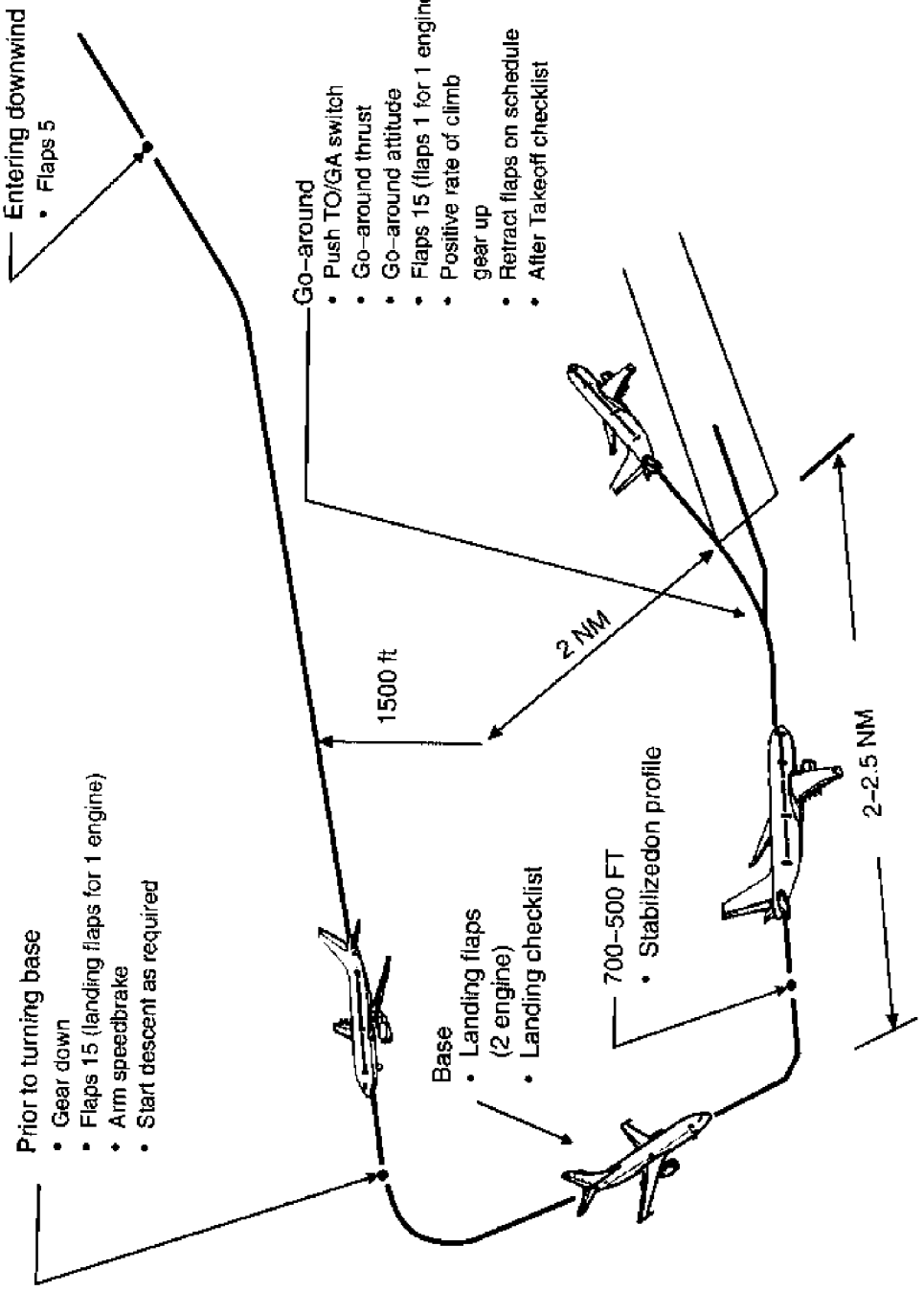

Figure 11.1 A Typical visual approach operating procedure

Section 2 Supplementary Reading

Passage 1 ATC under Pressure

What happened to ATC on the evening of the airport? Weather was good VMC but we had a 29-minute hold. Whilst we held we heard two aircraft go around.

We were put on the localiser at 4000ft quite close to the Glideslope intercept. Told to keep 180Kts by the Director. Unable to tell the controller that we were LOC established because of R/T overload.

Eventually got clearance for ILS approach and had to use Vertical Speed mode down to intercept the Glideslope. Not told to slow to 160Kts to 4 DME until about 6 DME, so in my opinion chasing preceding aircraft too quickly (when we vacated the runway after landing, the closest following aircraft was still a long way out).

Slowed to 160Kts, then at 4 DME to VRef + 5.

Preceding aircraft still on runway when we contacted Tower. Concerned about possible go-around. Preceding aircraft was slow to clear, but then was clear and nothing from Tower. At 100ft radio, I called "ABC 123 cleared to land?" and then Tower cleared us to land when we were in the flare.

We were almost the third go-around in 30 minutes. It did not appear to be a good night for ATC.

Discussion question: What was unusual about ATC the evening?

Words and Expressions

VMC		Visual Meteorological Conditions 目视气象条件
Director		五边指挥
chase	[tʃeis]	To follow rapidly in order to catch or overtake 追赶
flare	[flɛə]	The rotation of the aircraft's nose up, used at the final part of landing to arrest the descent rate before touch down 拉平

Passage 2 Position Reporting

I was recently on a VFR flight, in the right hand seat. We were passing within a couple of miles of an Aerodrome Traffic Zone (ATZ), under a Flight Information Service from the local Lower Airspace Radar Service/Approach controller. Visibility was good, and there was not too much traffic on the frequency.

The ATCO requested a position report by asking if we were over the Island. This feature is not named on the half million chart, and in the short time that I spent looking for it, and asking for clarification, a potential Airprox developed. This was noted by the pilot flying and avoided in good time by an evasive manoeuvre.

It left the other aircraft, a light twin, and ourselves rather annoyed by the lack of traffic warning, and it left me angry that the ATCO caused confusion by referring to a local feature not recognisable to a transiting pilot. This was a distraction to the pilot and me that we did not need, being close to an ATZ. We were squawking 7000 Mode C, so I would have thought our position was known. If not, or if there was more traffic than usual on screen, maybe the ATCO should have asked for a specific squawk.

It seems that ATCOs should be aware that non-local pilots only have charted features by which to navigate. Local knowledge should not be taken for granted.

Discussion question: What did the author thinks was the main cause of the incident?

Words and Expressions

ATZ		Aerodrome Traffic Zone 机场交通区
evasive	[i'veisiv]	Avoiding or escaping from difficulty or danger especially enemy fire 避让的
LARS		Lower Airspace Radar Advisory service, available to all aircraft flying in uncontrolled UK airspace from 3000 feet AMSL to FL95 低空雷达咨询服务
transiting pilot		飞越驾驶员
non-local pilot		异地驾驶员
FIS		Flight Information Service 飞行情报服务

Radar Advisory Service	Provided outside regulated airspace to notify pilots of conflicting traffic and to advise suitable avoiding action Under RAS controllers aim to achieve a minimum separation of five miles or 5000 feet against unknown conflicting traffic 雷达咨询服务
Radar Information Service	Provided to notify pilots of conflicting traffic outside regulated airspace, but offering no avoiding action 雷达情报服务

Chapter 12 Taxi-in and Parking

Section 1 Dialogues

1. Blocked Taxiway

(1) CTL Fastjet 229, take the first convenient turnoff, then turn right into taxiway Bravo.

PIL First convenient; right turn into Bravo; Fastjet 229.

(A while later)

PIL Fastjet 229, runway vacated.

CTL Fastjet 229, stop taxi; a 737 has taken a wrong turning and is blocking the taxiway; you'll have to wait until a tug pushes him back beyond the next intersection.

PIL Roger, holding, Fastjet 229.

(2) CTL Turn first right to take the inner taxiway. There's an A320 obstructing the outer taxiway.

(3) PIL Fastjet 459, runway vacated, and can we stay here for a minute? We need to clean our windshield before taxiing in.

CTL Can you manage to move forward a little bit? You'd block the rapid exit otherwise.

2. Requesting a Tug

(1) CTL Fastjet 223, take the second left; contact Ground on 121.7.

PIL 121.7, Fastjet 223.

PIL Princeton Ground, Fastjet 223. We seem to have had a nose gear tire blowout on landing. Request a tug to tow us to the apron.

CTL Roger, Fastjet 223. Can you move forward under your own power; 50 meters or so, until you pass the next intersection?

PIL Affirm, I think we can manage that, slowly. Fastjet 223.

CTL Thank you, Fastjet 223. We'll get a tug out to you as soon as possible.

3. Requesting Security Service

(1) (The aircraft has just vacated runway.)

PIL Ground, Fastjet 475, taxiing in.

CTL Fastjet 475, taxiways D and F to stand E12.

PIL Confirm E12, we've never parked there.

CTL Affirm, Fastjet 475. Stand E12 and don't let your passengers off. The police want to search your plane.

PIL I see, but can't they wait until after disembarkation?

CTL Fastjet 475, I am just passing the message.

PIL OK, but, will you inform our company please?

CTL Fastjet 475. Your company has been informed.

(2) (The aircraft is taxiing in.)

PIL Ground, Fastjet 778. Can you call for the police to come onboard when we get to the gate? Somebody has lost a wallet. There seems to be a pickpocket on board.

CTL Fastjet 778, OK. I'll tell them right now.

(A while later)

PIL Ground, Fastjet 778. The wallet has now been found in a baggage bin, so please tell the police not to come.

(3) PIL Ground, Fastjet 345. Could you arrange for us to be met on the apron by the police? We've got an unruly bunch of soccer fans on board.

CTL Fastjet 345, in fact the police are already on the apron dealing with a previous aircraft with the same problem.

(4) PIL Ground, Fastjet 391. Would you confirm that there is a security van waiting for us? We are carrying a valuable shipment, and our company does not answer us on the frequency.

CTL Fastjet 391, Affirm. I can see it on your stand.

4. Overshooting the Intersection

(1) PIL Fastjet 914, runway vacated.

CTL Fastjet 914, taxi to Charlie 16; turn second left.

CTL Fastjet 914, I say again, second left.

PIL Ground, Fastjet 914. I didn't get your call, and have passed the intersection now. Could I just turn round?

CTL Fastjet 914, negative. Hold your position; there is work in progress ahead; you'd blast the men and equipment; I'll call for a tug to push you back.

5. Restricted Taxiways

(1) PIL Ground, Fastjet 450, runway vacated.

CTL Fastjet 450, stop there; you have taken a wrong taxiway.

PIL Why? What's wrong?

CTL Fastjet 450, taxiway C is restricted for wide body aircraft; hold there while I send a tug to you.

(2) PIL Fastjet 920, 17L vacated.

CTL Fastjet 920, stand E10 via the outer taxiway.

PIL Couldn't you make it a bit shorter, please?

CTL Negative, Fastjet 920. The inner taxiway is partially flooded.

6. Parking Stands

(1) PIL Ground, Fastjet 1495. Could you confirm whether our stand is November 10 or 11? I think they expect us on 11.

CTL Fastjet 1495, Negative. It's the Airbus behind you that's expected on 11.

(2) CTL Fastjet 058. Taxi slowly, I'll call you back with a stand, the apron is a bit crowded at the moment.

PIL Roger, Fastjet 058.

CTL Fastjet 058. Stand Charlie 15, taxi with caution after passing the intersection, due work in progress.

(3) CTL Fastjet 230, please disregard the marshaller's instructions and pull in a bit closer to the A320; caution the blast fence; Sorry, but it's a bit of a squeeze on the apron this morning.

(4) PIL Ground, F-XH. Stand six seems to be blocked by vehicles; all three of them are parked on the stand, in my way.

CTL OK, F-XH, I'll get a control van out for you. If they don't move, keep me advised.

(5) PIL Ground, FOCXH, runway vacated.

CTL F-XH, taxiways 1, 7, 6 and 4, to the cargo terminal; they've put you down for stand D6, but I think that's wrong.

PIL We'd like to use stand 6; could you confirm with ramp control?

CTL They've confirmed it by phone, taxi to D6.

(6) PIL Ground, Fastjet 391 is on the main taxiway.

CTL Roger, taxiways A, E and D to stand 23.

PIL Fastjet 391. Confirm the stand number?

CTL Er, stand 23, Fastjet 391.

PIL We'd prefer a stand on the south pier. Could you change that?

CTL Fastjet 391, Standby. I'll contact the apron controller.

(A while later)

CTL Fastjet 391, Ground. What was the reason for your request?

PIL We've got a problem with the aircraft. We'd like to be near to our maintenance area.

CTL Roger, Fastjet 391. I'll call you back.

(A while later)

CTL Fastjet 391, taxiway A all the way to stand 8.

PIL Thank you very much.

(A while later)

PIL Fastjet 391 has marshaller in sight. Good night!

(7) CTL Fastjet 048. Taxi for Foxtrot 1.

PIL That's a long way from the passenger gate. Haven't you got anything closer to the terminal?

CTL Fastjet 048, sorry, but the apron by the south terminal is quite congested at the moment.

(8) CTL Fastjet 7684. Taxi to Charlie 15.

PIL Can we taxi to Charlie 11 instead? We've just been advised our maintenance is expecting us over there.

(9) PIL Fastjet 3863. 14L vacated.

CTL Fastjet 3863, taxiway B to stand Echo 11.

PIL Confirm that there's a fuel hydrant on Echo eleven.

CTL Negative, Fastjet 3863, but I'll get a refueler out to you.

(10) PIL Ground, Fastjet 410 is taxiing in.

CTL Roger, Fastjet 410, taxi to the junction of J and N, to hold there, due to a-

pron congestion.

PIL Hold at the intersection, Fastjet 410.

CTL Fastjet 410, can you please circle the grass strip on our left, to give way to the aircraft behind you?

PIL That's OK, but we have been waiting here for over ten minutes. Can you fix a stand for us?

CTL Thank you, Fastjet 410. I'll talk to the apron controller again.

7. Precautionary Instructions

(1) PIL Fastjet 809 is taxiing in.

CTL Fastjet 809, next left; stand C10. Caution the snow banks on the left-hand side of the taxiway.

(2) PIL Ground, Fastjet 923. Request taxi to the maintenance area via taxiway N.

CTL Fastjet 923, negative. Continue straight ahead; taxiway N is snowbound.

(3) CTL Taxi slowly on approaching the apron. Caution oil spillage just by stand Delta 12.

8. Health Control

(1) CTL Fastjet 344, Port Health advise us that they will be meeting you; they say that your passengers must stay on board until cleared.

PIL Did they give a reason?

CTL Fastjet 344, there seems to be a dengue scare at your departure airfield.

9. Reporting an Intruding Vehicle

(1) PTL Fastjet 450 is on the runway. The RVR is probably a bit worse than you're giving, if that helps.

CTL Roger, Fastjet 450. In fact it dropped to 500 meters as you touched down. Take the first right and report runway vacated.

PIL We just had a yellow van appear out of the fog, crossing the runway.

CTL Roger, Fastjet 450. Was it going east or west?

PIL It crossed us left to right going east.

CTL Fastjet 450, there's no reported vehicle on the maneuvering area, I'll send a police van to look for it.

10. Miscellaneous Taxiing Instructions

(1) CTL Depart the apron and taxi to the hangar; watch out for the STOP sign at the intersection.

(2) CTL Give way to the DC10 that is taxiing in to terminal number 1.

(3) CTL Backtrack the runway and turn on to taxiway K. Taxiway Q is closed.

(4) CTL Please expedite taxi; taxi to the hangar direct.

(5) CTL Taxi to Alpha 22; caution on approaching your stand; there's no marshaller available due to ground staff strike.

Words and Expressions

disembarkation	[ˈdisembɑːˈkeiʃən]	Leaving a vehicle or aircraft
blast	[blɑːst]	爆炸；喷流；吹跑
pickpocket	[ˈpikˌpɔkit]	A thief who steals from the pockets or purses of others in public places 扒手
windshield	[ˈwɪndʃiːld]	Transparent screen (as of glass) to protect occupants of a vehicle 风挡
a bit of a squeeze		有点拥挤
congestion	[kənˈdʒestʃən]	The state of being tightly compacted 堵塞；拥挤
refueller/tanker/bowser		A truck constructed to transport liquids, such as oil, in bulk 油罐车
fuel farm		油库
snowbound	[ˈsnəʊbaʊnd]	Confined or shut in by heavy snow 被大雪封堵的
partially	[ˈpɑːʃəlɪ]	In part; in some degree; not wholly 部分地
oil spillage (oil slick)		洒出的滑油
fuel hydrant		加油栓

Exercises

I. Translation

1. 停止滑行，有架 B737 堵住了内侧滑行道，你得等到拖车把它推过下一个道口。
2. 证实一下这是 J 滑行道口吗，我看不要标志。

3. 不要让旅客下飞机，警察要搜查飞机。
4. 我没有听到你的发话，现在已经过了道口，可以掉头吗？
5. 能否给我们换个机位，我们飞机有故障，想要离我们的维修区近一点。
6. 有辆面包车停在我的机位上，挡着我的道儿。
7. 你能不能绕你左边的草坪转一圈，让后面的飞机过去？
8. 慢慢滑，一会儿再告你停机位。
9. 检疫部门说你起飞地有登革热，让旅客在机上等待检查。
10. E 滑行道关闭，跑道 180 掉头，D 脱离。

Ⅱ. Word Study

autobrake	[ˈɔːtəˌbreik]	自动刹车
autothrust	[ˈɔːtəˌθrʌst]	自动油门
deportee	[diːpɔːˈtiː]	被驱逐者
immigration	[ˌimiˈgreiʃən]	移民 immigration authority 移民局 immigration procedure 入境手续 immigration control/border control 边检
disruptive passenger		捣乱的乘客
drunken passenger		醉酒的乘客
sniffer dog		嗅探犬
theft	[θeft]	偷窃
drug trafficker		毒贩
smuggler	[ˈsmʌgl ə(r)]	走私犯
unaccompanied minor		无人陪伴儿童
unattended baggage		无人照看的行李
pilotage	[ˈpailətidʒ]	Aerial navigation by visual identification of landmarks 地标领航
dead-reckoning		The navigation of an airplane solely by means of computations based on airspeed, course, heading, wind direction, and speed, groundspeed, and elapsed time 推测领航
landmark	[ˈlændmɑːk]	地标
waypoint	[ˈweipɔint]	A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation 航路点

tail parachute		尾伞；减速伞
previous	[ˈpri:vjəs]	先前的
preceding/leading		前面的
succeeding/following		后面的

Ⅲ. Diagram Study

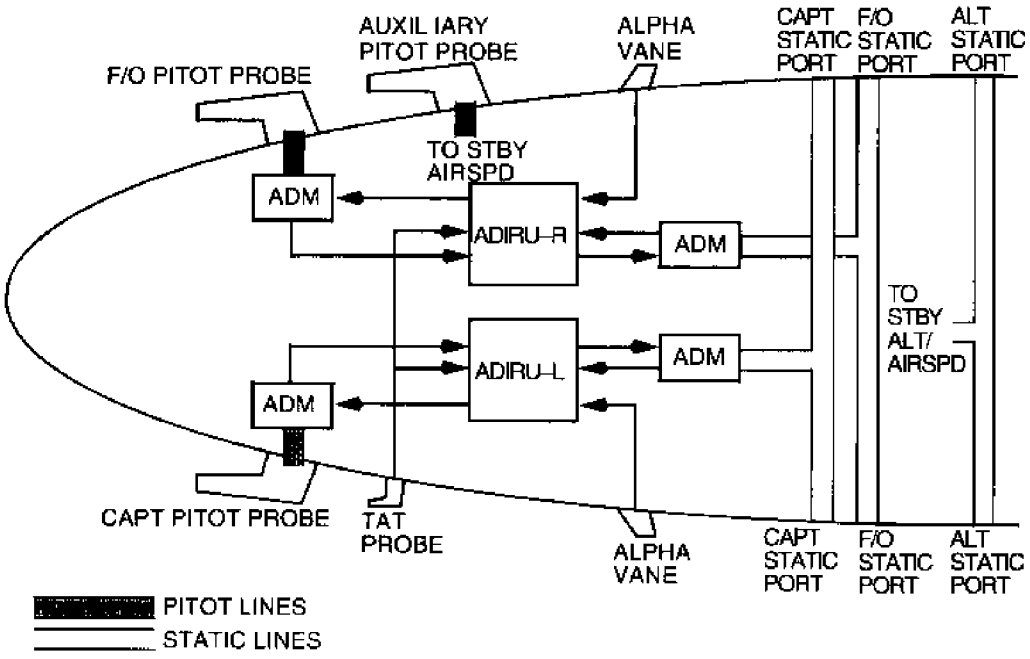

Figure 12.1 Air Data Inertial Reference System

Section 2 Supplementary Reading

Passage 1 Approved To Tow?

Recently the Airport Authority has adopted the Airport Operators Association guidelines and official CAA policy regarding the requirement for drivers of all vehicles on the aprons and maneuvering area, to undergo a specific training course (provided by the Airport Authority). Subsequently, an AOA driving permit for apron or maneuvering area or both is issued to individuals who successfully pass the course.

The facilities of an aircraft maintenance and engineering organization are located such that they are required to tow aircraft (anything up to large twinjets) across instrument and visual runways.

One ground running area is on the threshold of a runway, and often after ground runs, there is a requirement to tow back to the parking area.

Initially the Airport Authority insisted that any towing on the maneuvering area had to be escorted by a qualified member of the airport staff, but after pressure from the engineering organization, they relented, and devised a scheme whereby the company could tow unescorted to some parts of the airfield, but not others.

We now have a situation where the company is allowed to tow large aircraft unescorted across an instrument runway, but they must have an escort to cross a non-instrument runway.

In my opinion, the engineers are either qualified to tow on the maneuvering area or they are not, and it is not my job to query their qualifications, but the Airport Authority considers otherwise.

The situation as it stands, leads to a lot of unnecessary work for us, and the ATSAs, especially when we are busy executing our primary ATC tasks, but moreover, I am concerned that there is a significant possibility of an unintentional runway incursion because of unqualified staff towing aircraft.

Discussion question: Why is an escort required for towing aircraft on some parts of the airport?

Words and Expressions

AOA		Airport Operators Association 机场运营人联合会
twinjet	[ˈtwindʒet]	双发喷气式飞机
relent	[riˈlent]	Give in, as to influence or pressure 让步
as it stands		As something is now, without changes to it 按照现在情况，事实是这样
ATSA		Air Traffic Services Assistant 空中交通服务助理

Passage 2 Surface Movement Radar

I am writing this report because my colleagues and I are becoming increasingly concerned by

the number of incidents during Low Visibility Procedures (LVPs) and the current lack of a Surface Movement Radar (SMR) capability. SMR has been promised for many years but not delivered. It is hardly new technology; it has been available for years, so why hasn't it been installed?

For many years now we have been operating as carefully and consistently as we can in LVPs relying totally on pilots' reports to ascertain where aircraft are.

During LVPs we operate a single entry point and a single exit point strategy when it comes to runway access.

Recently during a busy night I witnessed two potential incidents during LVPs (RVR 350 meters). The first one involved a large freighter aircraft which vacated the runway at an intermediate intersection (despite a message on the ATIS instructing all landing aircraft to vacate at the end of the runway); this put the aircraft in potential confliction with a charter aircraft on the parallel taxiway which had only just passed that point. The pilot concerned wasn't even sure where he had vacated until a fire vehicle spotted him vacating at the intersection.

The second potentially serious incident involved a departing freighter which taxied to the wrong holding point; again the pilot was not aware of the error until ATC queried his position. Both of these events occurred within the space of 15 minutes!

Initially, the intention was to submit an MOR but subsequently the ATCO was persuaded not to by management. This is regrettable, especially as there has been a very similar incident more recently (which was reported).

In the past several years there have been many similar incidents at this airport not all of which have been reported. There seems to be a tendency to only report the "serious" ones. Sometimes ATCOs are persuaded not to bother filing an MOR, others think it will achieve nothing, but more recently someone was actually threatened with suspension by management if they filed an MOR.

The whole issue is a source of extreme concern and worry, with not even a glimpse of SMR on the horizon. I'm sure pilots and operators alike would be surprised to learn that we do not have SMR at the airport especially as we operate CAT II/III.

Pilots rely on ATC to ensure that the runway/localizers sensitive area is protected during LVPs but we are totally dependent on the accuracy of pilots' reports and them never making a mistake. As we all know we are human beings and as such are all capable of making errors. SMR would make any such mistakes easily detectable and help to prevent them from

occurring in the first place.

Management's response to the growing concerns and MOR's has been to produce more defined operating procedures for ATCOs to use during LVPs. These may reduce the risk slightly but they do not prevent pilot error As ATCOs, there is only so much we can do; we are not physically in control of these aircraft. Nothing can act as a substitute for SMR.

What I fail to understand is why this threat to safety does not appear to be taken seriously by either management or the CAA. We have entered a new era where both management and ATCO's alike are liable for corporate manslaughter and possible imprisonment (Milan Linate), so I'm surprised it isn't taken seriously.

We live in a world of risk assessments and safety cases and yet something as important as this is just ignored. Why is it not a mandatory CAA requirement for CAT II/III airfields to have SMR? Recommendations from the CAA serve no purpose when it comes to finances and accountants. It is a question of finances vs. safety. This is not acceptable.

Until SMR is installed we are effectively working blindfolded and hoping and praying that nothing goes wrong.

Discussion question: Why does the author think they need an SMR at their airport?

Words and Expressions

MOR		Mandatory Occurrence Report 强制事件报告
regrettable	[riˈgretəbl]	Deserving regret 遗憾的
freighter	[ˈfreitə]	A vehicle, especially a ship, used for carrying freight 货机
suspension	[səsˈpenʃən]	停职
glimpse	[glimps]	A brief, incomplete view or look 一瞥; 一看
manslaughter	[ˈmænˌslɔːtə]	The unlawful killing of one human by another without express or implied intent to do injury 过失杀人罪
imprisonment	[ɪmˈprɪzənmənt]	Putting someone in prison or in jail as lawful punishment 监禁
safety case		安全判例

Appendix

Suggested Answer to Translation Exercises

Chapter 1

1. We are missing two passengers. Their luggage has to be identified and removed. I'll call you when ready.
2. Our dispatch has just told us to pick up 20 passengers from a Southern Airline flight that has been cancelled, which means about 30 minutes delay. I'll call you when boarding is complete.
3. Expect an additional delay of 40 minutes due to flow control in Zhengzhou area.
4. If we don't get off soon, we'll have taxi back and refuel.
5. Originally we were to take off at 08:00 and now we are delayed until 11:00 due to aircraft reasons. Please update our flight plan.
6. Flight Level 370 is subject to regulations.
7. Your clearance has expired. I'll get a new one when you are ready.
8. We are to carry some urgent medicines, and hope to depart as soon as we are ready.
9. Our flight plan processing system has failed. Delay is not determined for the moment.
10. I don't have a plan under that callsign. Standby while I check.

Chapter 2

1. Your destination airport is restricting traffic with 20 minute intervals due to ground staff strike.
2. Let me coordinate, and see if I can squeeze a slot for you to depart.
3. There is a hitch in catering delivery. Please delay our departure. I'll call you when ready.
4. Our cargo door has been damaged by a container. We may have to cancel our departure. I'll call you when check is complete.
5. How is the snow clearing coming along? Can we expect to depart in 30 minutes?
6. We are carrying some fry. Couldn't we start up earlier?
7. Request to start up for engine test.
8. We are to carry an organ for transplant and expecting the delivery in a few minutes. We wish an immediate start-up when ready.

9. Can you check with China Eastern for us and see if we can use their GPU?
10. The airbridge on our stand is out of order. We may have to delay our start-up.

Chapter 3

1. They say we'll have to wait for two hours if we don't make this slot.
2. The tow bar has come off during pushback. Is it OK if we are a few minutes late?
3. I can't read you. Please check your transmitter.
4. Please contact your company when convenient.
5. Station making the last transmission, please identify yourself.
6. Standby for pushback. There is a Boeing 737 passing behind.
7. The tow bar has bent during the pushback. We'll have wait for them to get another one.
8. Can you taxi under your own power from your present position?
9. Negative. That was for Air China 963.
10. Pushback approved. To face south. The runway-in-use has just changed to 02.

Chapter 4

1. Do you require full length departure runway 15?
2. Would you get someone to remove our chocks?
3. Taxi slower. Caution the motor sweep just off the taxiway.
4. Our left wheels departed the pavement and now bogged down in the mud. Please get us boarding steps and a bus.
5. We are unable to taxi now. The nose wheel steering is inoperative. Please call for a tug to tow us back to the apron.
6. There seems to be a motor tricycle on the taxiway in front of us.
7. There seems to be a hatch that is wide open on your left wing. Would you please check?
8. Make a one-eighty at the end of the taxiway. The security department requires you to return to stand.
9. You missed taxiway C3. Hold there while I call for a tug to push you back to the intersection.
10. Follow the Airbus 300 to departure runway 36C.

Chapter 5

1. Takeoff aborted due to tire blow-out. We are now standing on the overrun. Please send a tug around.
2. You got flames coming out from your starboard engine.

3. Takeoff aborted due to undercarriage fire. We are going to evacuate on the runway.
4. The thunderstorm is approaching the far end of the runway. You'd better hold for a while.
5. The preceding departing 767 may have shed a tire tread. Hold your position. We are going to check the runway.
6. If you don't have any inbound traffic, we'd like to stay on the runway for a short while to check the actual runway visual range.
7. We have to wait until the crosswind eases off. Advise us when it drops to 10 m/s or less.
8. Negative for right turn after departure. Track 300 until 2100 meters before setting on course.
9. Stop immediately. There is an animal on the runway.
10. What is the reason for his departure priority?

Chapter 6

1. We ran into a flock of birds on takeoff. Everything seems to be normal. You'd better check the runway for any debris.
2. Request to return for landing. The rear cargo may not be closed properly.
3. We are coming back. A warning light has just come on. There is probably a fire in the wheel well. Request landing priority and emergency equipment.
4. Can you cross the control boundary at or above 7800 meters?
5. Expect further climb in 15 minutes due to crossing traffic.
6. Cleared visual approach. Left or right to suit you. The emergency equipment is standing by on the taxiway.
7. We had a bird strike on takeoff. Starboard engine has been shut down due to overheating. Request to return for landing.
8. We'd like to cruise climb to FL390 if possible.
9. We are too heavy to climb straight to FL410. Request to maintain FL350 for a while.
10. There is something wrong with our pressurization system. Request immediate descent.

Chapter 7

1. Are you experiencing any turbulence at FL330?
2. Request offset 20 km to circumnavigate the weather.
3. You may only deviate to the left due to the prohibited area right of the airway.
4. A passenger is taken ill, probably a stroke, request to divert to Wuhan and medical assistance on landing.

5. The rear washroom is on fire, and the fire is spreading rapidly, request a vector to the nearest airport for landing.
6. We seem to have serious fuel leak, and perhaps can only keep in air for about 30 minutes. Please find us a suitable airport for emergency landing.
7. A man has taken a stewardess as hostage in the front washroom, and demand us to go to XX city.
8. We got an anonymous call saying you have a bomb on board. What is your intention?
9. Unable to descend, TCAS resolution advisory.
10. We kind of have the plane under control now. We are going to do some troubleshooting. Give us a block altitude.

Chapter 8

1. We have a problem with our pressurization and must descend slowly.
2. For security reason, you'll have divert to Green Town for landing.
3. We'll probably evacuate on the runway after landing.
4. We have a fire warning in the cargo hold. Request immediate descent and landing priority.
5. The firemen need to know if you have any dangerous goods on board.
6. There is an outbreak of cholera at your departure point. Hearth control department requires you to keep the passengers onboard.
7. I am not familiar with back course approach. Request detailed instructions.
8. I told him to descend 5400, he probably got it wrong.
9. We got it insight. Looks like a fighter plane, well above us.
10. I think this is a serious incident and will submit a complete report after landing.

Chapter 9

1. Caution. Previous aircraft reported bird flocks on final.
2. We just run into a flock of bird. But everything seems to be normal so far. Request visual approach.
3. If you could start reducing speed to 200 now, it'll save me asking you for a bigger speed reduction later on.
4. We don't have a CAT II rating, and would like to hold for weather improvement.
5. We are unable to extend flaps beyond 10 degrees. Request high speed flat approach to runway 21, which is the longest available.
6. The weather is below airport operating minima now, due to a fog bank obscuring the

south end of the runway.

7. Expect 30 minutes delay due to VVIP movement.
8. My radar has got a low altitude warning on you. Please check your altitude immediately.
9. It has been raining for some time, but there has been no report of standing water.
10. Standing water has been reported by previous landing aircraft at the far end of the runway.

Chapter 10

1. I am just telling you there's such a strong windshear on final and you should change the runway to land south.
2. Previous aircraft reported windshear in the last 500 feet of final approach, with an airspeed loss of 20 knots.
3. The lights are too dim, please brighten them up.
4. We're running low on fuel, and cannot hold longer than five minutes, how long do you estimate the delay to be?
5. Don't mistake the street lights for runway lights.
6. Please do us a favour and call for a wheel chair for a handicapped.
7. We got a tire blow-out on landing and can not taxi off the runway. Please call for a tug, boarding steps and a passenger bus.
8. We hit a number of crows just now. Number 2 engine is overheating. Request emergency services on landing.
9. For your information, the visibility is worse than what you reported. We can hardly see the taxiway centerline. Suggest you hold further approaches.
10. Make a full-stop landing this time due to heavy inbound traffic. Expect to resume flight in 30 minutes.

Chapter 11

1. No contact at decision height, going around.
2. Go around, unreported vehicle is crossing the runway.
3. Continue approach, a B777 is just rolling.
4. Go around, the aircraft in front of you is stuck on the runway.
5. Can you accept landing with a crosswind of 18 knots gusting to 25?
6. Be prepared for a possible go-around, the departing aircraft is not moving.
7. Go around. The aircraft in front of you blew a tire on landing and has scattered chunks of rubber on the runway.

8. Delay not determined, the power plant has failed and is switching on the standby generators. I'll keep you advised.
9. The foam carpet begins 500 meters after the threshold and is 800 meters long and 20 meters wide.
10. I'll position you on the ILS for 36R about 8 miles from touchdown. Will that be OK with you?

Chapter 12

1. Stop taxi. There is a B737 blocking the inner taxiway. You'll have to wait until a tug pushes him beyond the next intersection.
2. Just confirm this is intersection with taxiway J. I can't see any signs.
3. Don't let the passengers off. The police want to search the plane.
4. I missed your call, and now have passed the intersection. Could I just turn round?
5. Could you change the stand for us? We got a problem with our aircraft and want to be near our maintenance area.
6. There is a minibus parked on my stand, in my way.
7. Could you circle the grass strip on your left, to give way to the aircraft behind you?
8. Taxi slowly. I'll call you back with a stand.
9. The health department say there is a dengue scare at your departure point, and require the passengers to stay on board for checks.
10. Taxiway E is closed. Backtrack to vacate via D.

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